Manual on Instructional Aids for Teaching Excellence

R K Samanta

Excellent teaching involves more than the traditionally advocated characteristics/traits, taught in the usual College/University pedagogical courses. Teaching excellence centers around the relationship between the teacher, the learners and the job. Teaching is learner-centred: the objective of the teacher, the motivation to act, the evaluation of teacher performance, all start and end with the learner. To achieve this objective or to make it happen in reality, it is universally acclaimed by the Educational Technologists that selected instructional aids must be used during teaching/instruction in training and education.

The Instructional aids enable learners to see and hear, look and listen efficiently and with greater understanding. To a large extent, the teacher's success — the degree of progress made by his/her learners will be determined by his/her ability to communicate. And to communicate better and more effectively, udio-visual aids have greater roles to

ng all these in view the present ilation has been planned to rporate and focus the use of various structional aids for effective teaching to achieve teaching excellence and making learning more holistic and meaningful.

It is expected that this manual will greatly meet the varying needs of different clientele — students, teachers, researchers, educational technologists and development administrators involved in education and training.

Rs.125

MANUAL ON INSTRUCTIONAL AIDS FOR TEACHING EXCELLENCE

“If he is indeed wise,
he does not bid you enter the
house of wisdom, but
rather leads you to the threshold
of your own mind.”

Gibran (1923)

MANUAL
ON
INSTRUCTIONAL AIDS
FOR
TEACHING EXCELLENCE

R. K. SAMANTA

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PREFACE

Teaching excellence involves a combination of ingradients all blended together in proper proportion. The essential ingradients are probably the same for every good teacher but the exact quantity of each, and the method of blending them, will undoubtedly vary with each other.

Excellent teaching involves more than the traditionally advocated characteristics/traits, and taught in the usual College/University pedagogical courses. Teaching excellence centres around the relationship between the teacher, the learners and the jobs. Teaching is learner-centred: the objective of the teacher, the motivation to act, the evaluation of teacher performance, all start and end with the learner. To achieve this objective or to make it happen in reality, it is universally acclaimed by the Educational Technologists that selected instructional aids must be used during teaching/ instruction.

The present compilation is a modest attempt to expose the fellow Teachers, Instructors and Trainers of various disciplines on uses of different instructional aids for achieving teaching excellence and making learning more holistic and meaningful as the present author has experienced during his advanced training on Audio-Visual Communication at Cornell University, Syracuse University and the Ohio State University, USA in 1987-88.

The Volume is divided into 6 Parts viz. A: General, B: Non-Projected Visuals, C: Projected Visuals, D: Audio-Visuals, E: Extension Methods, and F: Media Design Principles with minute details of several instructional aids supported with suitable illustrations.

The author would like to express his sincere thanks to all teachers of the three USA Universities those who have taught him and helped him gathering information on various instructional aids.

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The author assumes all responsibility for the errors, inaccuracies and incorretness of any statement included in this Volume. Suggestions for improvement, that could be incorporated in future editions of this volume, are most welcome.

R. K. Samanta

INTRODUCTION

Instructional media make use of the power of pictures, words and sounds to compel attention, to help an audience understand idea and acquire information too complex for verbal explanation aline, and to help overcome the limitation of time, size and space.

While the advantages of using instructional aids have been recognized for a long time, their acceptance and integration within instructional programmes, have been slow. Recently, there has been increasing evidence that positive results take place when carefully designed, high quality instructional aids/media are used either as an integral part of classroom instruction or as the principal means of direct instruction. The significant contributions often realised out of these aids are :

1. The delivery of Instruction can be more standardized,
2. The Instruction can be more interesting,
3. Learning become more interactive through applying accepted learning theory,
4. The length of time required for instruction can be reduced,
5. The quality of learning can be improved,
6. The Instruction can be provided when and where desired or necessary,
7. The positive attitude of students towards what they are learning and to the learning process itself can be enhanced,

8. The role of the Instructor can be appreciably changed in positive directions.

Taken together, these eight significant outcomes indicated that through the use of media both the efficiency of learning and positive attitudes toward learning may be enhanced. Each person must decide which of these contributions should receive attention when planning and producing media for instruction.

Traditionally, plans for instruction most often are made in intuitive fashion and may be based on ambiguous purposes. Subject content is the basic for planning and only casual attention is given to other details. It is now recognised that the instructional process is complex and that attention must be given to many interrelated factors if outcomes are to be successful.

Four elements-learners, objectives, methods and evaluation, generally form the framework of Instructional development procedures. There are also other factors which support or relate to these four elements. Taking all these elements and factors together we can develop an *effective instructional design plan* which includes the following interrelated components.

1. *Learning needs, goals, constraints* and priorities be assessed and recognised.
2. *Topics or job tasks* are to be selected, and general purpose to be served are to be indicated.
3. *Characteristics of students or trainees* are to be examined.
4. *Subject content* and *tasks* relating to the topic and job must be analysed and identified.
5. *Learning Objectives* to be accomplished by students or trainees must be stated.
6. Preparation of students or trainees for studying the topics are to be determined through *pre-testing.*
7. *Teaching/Learning* methods are to be selected and

teaching activities are to be designed to accomplish the learning objectives.

8. *Resources* to support the activities should be selected.
9. *Support Services* required for developing and implementing activities and acquiring materials must be specified.
10. Preparation to evaluate *student learning and programme outcomes* in terms of the accomplishment of objectives must be done.

As mentioned above the term, Instructional Media refers to *Audio-visual* and related materials that serve the instructional functions for education and training. Considering all these stated above this manual has been designed to provide a ready reference and outline about various audio-visual aids and its related components used for instructions in education and training.

WHY USE AUDIO-VISUALS OR INSTRUCTIONAL AIDS?

In this manual we used the term, '*Instructional Aids or Media*' which actually refers to *Audio-visuals* and *Related Materials* that serve instructional functions for education and training. Let us now examine why we use audio-visuals for instruction.

We learn through the five physical senses. Of the five senses the eye is by far the most efficient avenue of learning. Though in most of the cases good communication would be impossible without words but they alone are not enough. After all words are mere symbols. Even the same word means different things to different people. When people speak different languages it becomes all the more difficult to communicate with words correctly, effectively and meaningfully. And therefore, we need some thing which can help the teacher to effectively communicate the information to the intended audience(s) or receiver(s). These things are called '*Instructional*' or '*Audio-visual aids*'. These aids help make the meaning of our spoken words clear as we put our ideas across through more than one sense.

There are several reasons for using audio-visual aids in instructional process. A few important advantages are: holding attention, motivate people to take action, create interest, increase permanency of learning and making job of the teacher or the communicator easier.

Also these instructional aids contribute significantly in total learning process of the students/trainees and help teacher in achieving teaching excellence.

PART - A
GENERAL

1. LEARNING PRINCIPLES AND DEFINITIONS OF LEARNING

LEARNING PRINCIPLES

1. Learning depends upon Motivation.
2. Learning depends upon a Capacity to Learn.
3. Learning depends upon Past and Current Experience.
4. Learning depends upon Active Involvement of the Learning.
5. Learning is enhanced by Problem Solving.
6. Learning Effectiveness is dependent upon Feedback.
7. Learning is enhanced by an Informal Atmosphere.
8. Learning is augmented by Novelty, Variety, and Challenge.
9. Learning is enhanced when a Person knows what New Behaviour is expected of him.

SOME DEFINITION OF "LEARNING"

LEARNING involves behaviour change, either overt (open to view of knowledge) or covert (concealed; covered; hidden; secret; disguised) or both.

LEARNING consists of changes in the cognitive, psychomotor and affective behaviours of an individual.

LEARNING is defined as a relatively permanent change in performance which is the result of experience rather than maturation or fatigue.

TO LEARN is to be able to do something you have never done before and to remember it so you can do it again.

EXPERIENCE is defined as those perceptions which each individual has of the stimuli which impinge on his nerve endings.

THE LEARNING PROGRESS is the result of a student using his mind to acquire facts, ideas, skills and principles which are new to him.

The student uses his mind and his senses in diverse ways in order to learn. Students learn by:

1. Action
2. Observation
3. Imitation
4. Memory and recall
5. Imagination
6. Reasoning
7. Repetition.

2. THE LEARNING PROCESS

STIMULI are RECEIVED
then PERCEIVED
for LEARNING

Stimuli are the subject matter of experience.
Perceptions follow the reception of stimuli.
Behaviour is a function of perceptions.
Learning involves behavioural change.

Learning cannot occur unless there is some event or fact or symbol or other form of stimulation present.

STIMULI are:

Ideas, facts, generalizations, books, suggestions, pictures, lectures, maps, graphs, etc.

Smiles, frowns from teacher, "pats on the back," kicks or blows or derogatory remarks from other students.

People around them, movies, TV, sports, events, buildings.

All sights and sounds and smells and pressures.

QUANTITY of stimuli available will affect learning.
QUALITY of stimuli available will affect learning.
QUALITATIVE aspect more important than quantitative.

Summary: Learning starts with stimulation and stimuli vary in both quantity and quality.

THE LEARNING PROCESS

Presentation of Stimuli

- Stimuli have both quantity and quality. Both can be manipulated.

Receiving of Stimuli

- Stimuli are received by the body's sensory receptors, which are pathways to the learners' minds. "Input" pathways are different from "output" pathways.

Perceiving of Stimuli

- Learning gives meaning to the stimulus based on previous experiences.

Acting on Perceptions

- Learner acts on his perceptions and tests out his personal meanings of stimulus.
- Learner discover if he gave proper meaning to the stimulus/stimuli.

Learning Occurs

- Learner changes behaviour as a result of acting on perceptions and testing out personal meanings through behaviour.
- If change in behavior (a skill, attitude, or understanding) occurs, student has "learned."

Learning Impeded

Culture, family, school and teachers restrict stimuli.

Stimuli vary in quantity and quality. Can be manipulated.

Whenever stimuli are impeded, learning is slowed, restricted or stopped.

Improperly functioning receptors (eyes, ears, nose, mouth, touch) do not receive stimuli.

Physical conditions, e.g., brain damage, prevent person giving correct meaning to stimulus. A threat to person or inadequate self-concept affect perception of a stimulus. All stimuli interpreted as being either helpful or harmful to a person.

If a person is denied the opportunity to explore or act upon his perceptions, or if he is induced to react in some undesirable way, then learning will also be affected at this point.

Point : In most instances, learning difficulties are complicated at several points throughout the process of learning e.g., impedence may occur at source of stimuli and at perception of stimuli. This makes teaching even more difficult for the teacher. But, it also creates a worthwhile challenge-working with the minds of people.

3. THE IMPORTANCE OF THE FIVE SENSES IN LEARNING

1. The sense of sight	...	75%
2. The sense of hearing	...	13%
3. The sense of touch	...	6%
4. The sense of smell	...	3%
5. The sense of taste	...	3%

Senses are the avenues of communication between teacher and pupil. Teachers should strive to constantly improve their means of communication with their students.

The student uses his mind and his senses in diverse ways in order to learn. Students learn by:

1. Action:	Participating, doing, applying what he has learned by acting upon it. He may do the job, draw the diagram, practice the skill, perform an experiment.
2. Observation:	Students watch as the teacher performs skillfully the operations of the trade or the techniques of the job. The more observant the student, the more he will learn. The more the teacher stimulates thinking as the students observe, the more they will learn.
3. Imitation:	It is the following of instruction in a step-by step fashion. Figuratively, it is taking the student by the hand, if necessary, until the student masters the skill or thing taught.

4. Memory and Recall: Students learn by recalling past learning, past experience, things they have seen, heard about or done.

5. Imagination: The ability to picture mentally, visualize and have abstract conceptions helps students learn. This is often difficult to do, and the teacher must aid the process with sketches, drawings and explanations.

6. Reasoning: The ability to reason helps the student solve problems. It enables him to come to conclusions and make comparisons. The teacher should make every effort to help his students to reason why and how jobs or operations are performed.

7. Repetition : Practice may not make perfect, but it is a very valuable tool of learning. Repetition of the thing learned makes the learning more permanent leads to greater skill in the operations of an occupation, and by that proficiency instills confidence in the student and enables him to progress.

Because the learner learns in these ways, it is incumbent upon the teacher to become expert in his performance, correct in his information and accurate in his judgement.

"LEARNING Starts with what the learner knows, not with what the teacher knows."

4. SEQUENCE OF EVENTS IN COMMUNICATION

1. Message (at the mental level, generally in form of information) originated by a source or sender (brain of individual).
2. Message is encoded-converted into transmittable form (a thought verbalized by being turned into sound waves, or words of script).
3. Message then passes through a transmitter (print, film, TV, voice) via a suitable channel (air, wire, paper, light) to the receiver (a person's senses: eyes, ear's nerve endings).
4. Receiver decodes message (within the nervous system, conversion into mental symbols) at the destination (brain of the receiver).
5. Receiver becomes active. Reacts by answering, questioning, or performing mentally or physically.
6. A return or response occurs from receiver to sender, called feedback. Enables originator to correct omissions and errors in transmitted message, or to improve the encoding and transmission process, or even to assist the recipient in decoding the message.
7. Noise (interference or any kind of disturbance) can occur in the communication process which interferes with or distorts the transmission of message. Noise can have serious impact on the success or failure of communication.

8. Noise can be : * static on the radio
   * a flashing light when reading
   * ambiguous or misleading material in a film
   * internal noise, such as lack of attention of the individual
   * conflicting past experience
   * background experience as it affects perception

9. Plan to overcome noise:

— use factor of redundancy to overcome the affect of evident or anticipated noise: repeated transmission of a message, possibly in different channels, to overcome or bypass distracting noise.

— examples: showing and also explaining an activity, projecting a visual and distributing paper copies of the same material for study, and providing multiple applications of a principle in different contexts.

5. ATTENTION GETTERS

1. *Verbal captioning and labeling.* One of the first places the eyes will test is on any explanatory verbal areas of a visual. We expect to get the "sense and essence" of the message from the caption. Disappointment results if the caption fails to produce the gist. Captions should be brief and, if possible, be in telegraphic form.

2. *Colour.* The use of colour is perhaps the simplest and surest means of attracting attention. The attraction level of the colour is related to vision physiology. Red, for example, attracts more attention than blue if the saturation and intensity of the two hues are equal.

3. *Brightness.* Although certain colours attract more attention than other, it is not the colour but the brightness that is really effective. Attention generally is increased by the intensity of light and colour.

4. *Movement.* If the eye sees displacement of an object from one position to another, or if increasing distance between two objects is perceived, attention is almost always produced.

5. *Size.* Anything large relative to its surroundings, or in general, gets attention. Size, therefore, depends to a large extent on the content and general frame of reference. A six-inch spider captures more attention than a six-foot shark.

6. *White space.* A surrounding of white space brings attention to any object that it surrounds

7. *Shape.* Certain shapes and forms gain more attention than others. In general, asymmetrical, irregular shapes that also have the feature of simplicity are more eye-catching than duller, symmetrical, and complicated ones.
8. *Mystery.* Presenting the visual communication as an unfolding solution can be an effective attention technique.

6. VALUE OF AUDIO VISUAL INSTRUCTIONAL MATERIALS

1. Saves the teacher time and enhances the efficiency of instruction. Makes teaching easier.
2. Stimulates students' initial interest—arouses "sensations."
3. Forces teachers to think through the whole presentation.
4. Increases the retention of knowledge—more permanent learning.
5. Increases speed of comprehension.
6. Stimulates the development of understandings and abilities.
7. Provides for *individual* differences.
8. Develops a continuity of thought.
9. Involves emotional learning.
10. Can motivate goal seeking and evaluate outcomes.
11. Supplies a concrete basis for conceptual thinking and, hence, reduces meaningless word-responses of students—(diggleswitch).
12. More opportunity for student participation and personal experience.
13. Offers a reality of experiences which stimulates self-activity.
14. Provides for student teacher creativity.

"The Sermons We See"
By Edgar A. Guest

I'd rather see a sermon than hear one any day,
I'd rather see one should walk with me than merely show the way.
The eye's a better pupil and more willing than the ear;
Fine counsel is confusing, but example's always clear;
And the best of all the preachers are the men who live their creeds,
For to see the god in action is what everybody needs.
I can soon learn how to do it if you'll let me see it done.
I can watch your hands in action, but your tongue too fast may run.
And the lectures you deliver may be very wise and true;
But I'd rather get my lesson by observing what you do.
For I may misunderstand you and the high advice you give,
But there's no misunderstanding how you act and how you live.

7. EFFECTIVENESS OF NINE INSTRUCTIONAL MEDIA IN ART EDUCATION

Instructional Media	Learning Factual Information	Learning Visual Identifications	Learning Principles Concepts and Rules	Learning Procedures	Performing Skills Perceptual-Motors Acts	Developing Desirable Attitudes, Opinions, and Motivations
Still pictures	Medium	High	Medium	Medium	Low	Low
Motion pictures	Medium	High	High	High	Medium	Medium
Television	Medium	Medium	High	Medium	Low	Medium
3-D objects	Low	High	Low	Low	Low	Low
Audio recordings	Medium	Low	Low	Medium	Low	Medium
Programmed instruction	Medium	Medium	Medium	High	Low	Medium
Demonstrations	Low	Medium	Low	High	Medium	Medium
Textbooks	Medium	Low	Medium	Medium	Low	Medium
Oral presentation	Medium	Low	Medium	Medium	Low	Medium

Source: William H. Allen, "Research in Instructional Media and Art Educating, in The Uses of Newer Medium in Art Education, Project Director, Vincent Lanier (Washington, D. C. National Art Education Association, 1966), p. 24.

8. EDUCATIONAL EXHIBITS

I. *Introduction to Exhibits*

A. Educational Exhibits and Displays

1. Fair booths - town, co., state fairs
2. Window exhibits - down town, shopping centres
3. Show cases - schools etc.
4. Class room exhibits - your room.

B. Justification—Instruction in your absence. You need not be present.

C. Advantages

1. You can inform your audience when absent
2. Involve your students
3. Create pride.

II. *Your Challenge*

A. Three things your exhibit must do:

1. arouse interest
2. stimulate thought
3. cause action.

All viewers are casual at first. You have 10 seconds to get them to stop. You have 60 seconds to do the above three things. Note: exhibits are to be seen, not carefully read or studied. There are no exceptions to this rule.

B. To be successful, you must ask yourself two basic questions.

1. What is the message going to be?
    a. teach facts and give information
    b. teach a method or show a process
    c. promotion or fund raising
    d. recognition.

    You must choose only *one* approach.

2. Who will the audience be?
    a. Urban or rural?
    b. Young, old, all ages?
    c. What is the educational level and background of viewer?

III. *Principles of Design*

A. Arouse Interest

1. Contrasts in surroundings are effective.
2. Have a simple, non-cluttered, plain background.
3. Use lighting to being illumination to a high level.
4. Proper colour combination.
5. Motion attracts attention.
6. Use actual objects if possible.

B. Stimulate Thought

(More difficult than creating interest)

1. exhibit must be timely
2. exhibit must be personal
3. exhibit must present a single idea

keep asking, "What do I want my audience to do?"

Most exhibit stories can be told effectively with three or four major steps or points.

C. Cause Action

Much can be done by simply applying visual principles.

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S.C.E.R.T., West Bengal Library

1. Title
    - a. must identify exhibit
    - b. should be short - four or five words
    - c. words - short and simple
    - d. make it personal
    - e. have it convey action
    - f. make it ask a question
2. Arrangement of your message

Place heart of your exhibit at approximately eye level.

You read from top to bottom and from left to right.

Arrange message in same way. Put title on top and lead your viewers' eyes to the centre of interest.

3. Lettering
    - a. use horizontal lines, not vertical
    - b. use same type
    - c. make appropriate size

Letter size (min.)	*Reading distance*
1/4 inch	3 ft.
1/2 inch	8 ft.
1 inch	15 ft.
2 inch	25 ft.

Size applies to height of type (lower case letters). Lower case best. Line thickness - ½ of height.

4. Colour

Backgrounds should be neutral-gray; two or three colours. One dominant—one or two for accent. Visibility is a most important factor. Know your colour combinations. The following are ranked for legibility.

1. Black on Yellow
2. Green on White
3. Blue on White
4. White on Blue
7. White on Red
8. White on Orange
9. White on Black
10. Red on Yellow

5. Black on White	11. Green on Red
6. Yellow on Black	12. Red on Green

IV. *Creative Planning*

- A. rectangle shapes are best (side wings same height - ½ width)
- B. point of interest should not be geometrically centred—*doesn't show action*
- C. give title a key position
- D. vary size and shape of signs
- E. use colour to advantage—they are emotional and convey feeling.
  - 1. red - denotes courage
  - 2. white - purity
  - 3. blue-green - cool
- F. lighting can change colours (know this)
  - 1. incandescent—enriches reds and yellows; greys others
  - 2. white fluorescent—best, but hard to install
  - 3. tinted—heightens colour impact and interest-hard to control
  - 4. approximately 600 watts of lighting are needed to properly cover an area eight feet wide.

V. *Materials and Methods*

- A. Background
  - 1. usually furnished at exhibit halls
  - 2. wide range of seamless and corrugated papers
    - a. fade-proof, soil-resistant and will tolerate H_2O
    - b. order from paint and art stores
  - 3. plywood and other rigid-type products
  - 4. frame
  - 5. burlap good for front
    - a. doesn't show dirt
    - b. can be dyed

B. Items Used

1. real objects are better if possible
    a. must be kept fresh, clean and attractive
2. security—don't use valuables
3. make sure your items are instructive but not intriguing
4. stability is essential; exhibits must usually last for several days and "take a beating".

C. Lettering (hard)

1. stenciling usually isn't effective
2. push-out, glue on types are good
3. can cut out your own

D. Photographs

1. excellent—add action
2. should use different sizes
3. don't use glossy

E. Motion

1. make it work, not detract
2. flashing lights—flasher buttons
3. motors, pulleys, etc.
4. buy right kind; no breakdowns.

PART - B

NON-PROJECTED VISUALS

9. CHALK BOARD

The chalkboard or blackboard is perhaps the most common and effective visual aid when used properly. It is also inexpensive and requires only minimum of maintenance and care. It can be used by the extension workers particularly at the meetings as supplementary to other forms of aids.

When using a chalkboard, ensure that it is really clean before you start and that there is enough light falling on the board to enable it to be seen by everyone in the audience. A board measuring 120 x 180 cms (4" x 6") will give a good working area and two boards of this size may be used with advantage. It must be remembered that following good techniques and little bit of planning this traditional aid can also be used very effectively in communicating ideas.

It is always better to plan chalkboard work and to note down exactly what is needed on the board. This is necessary because the work must be presented in a logical order for the easy understandability of the material. All drawings and illustrations should be clearly legible from the furthest corner of the room. To be easily readable chalkboard writing should be between 5 to 6 cm (2" to 2.5") in height. Slanting writing is difficult to read and writing which starts high on one side of the board and slopes down at the other is irritating to the observer. Moving across the board when writing helps to eliminate this error.

Use of colour: coloured chalks can be very effectively used to highlight some of the points, in differentiation one item from the other and also in presenting diagrams. Coloured chalks vary in quality and colour density; pale colours are

CHALK BOARD

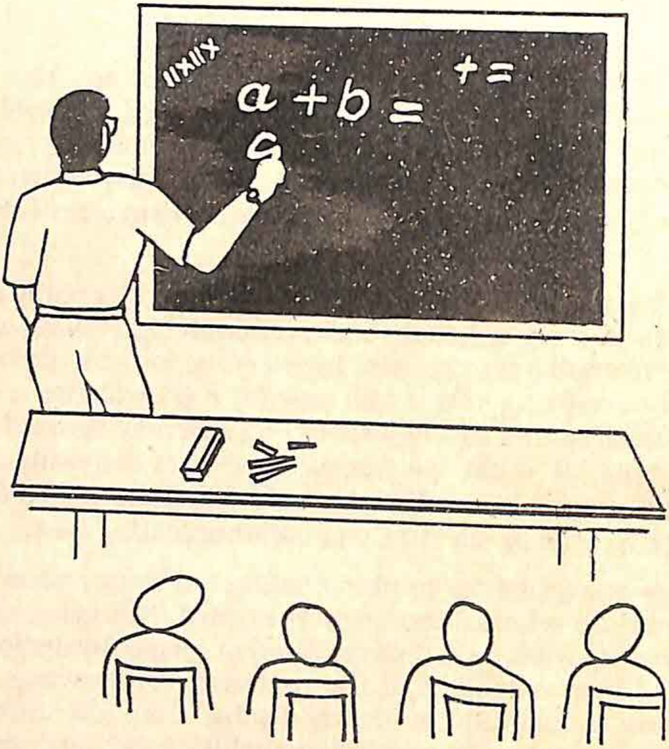


Fig. 1

more effective than deep ones and some colours are easier to see than others, especially against a matt background.

White Yellow:	Good contrast with green and black background.
Red, Lightblue : Green	Valuable of adding interest to a board; for adding colour to drawings or for underlining key words.
Brown, Purple, : Darkblue	Not so effective; some times very difficult to see.

An olive green chalkboard surface is restful to the eye and yellow chalk gives a good level of contrast against this surface colour.

Presentation—One of the problems associated with fixed chalkboard is that the material cannot be prepared in advances and concealed. There are however several ways of overcoming this difficulty.

(1) A lightweight black curtain may be suspended from a wire and arranged to fall directly across the front of the chalkboard. The curtain can be drawn back stage by stage to reveal material already prepared. Thus the interest of the audience can be hold in the subject matter.

(2) Sometimes it is useful to write pencil notes on board at eye level, so that they can be seen only by the user and may be prepared before the formal talk begins. They may be taken up step by step at the time of presentation. Thus it acts as an aid to the memory and save constant reference to prepare notes by the speaker.

(3) The 'dot-dusting' technique is very useful and effective and requires only a little time and no expense. It is particularly useful if the same basic material has to be repeatedly.

10. BULLETIN BOARD

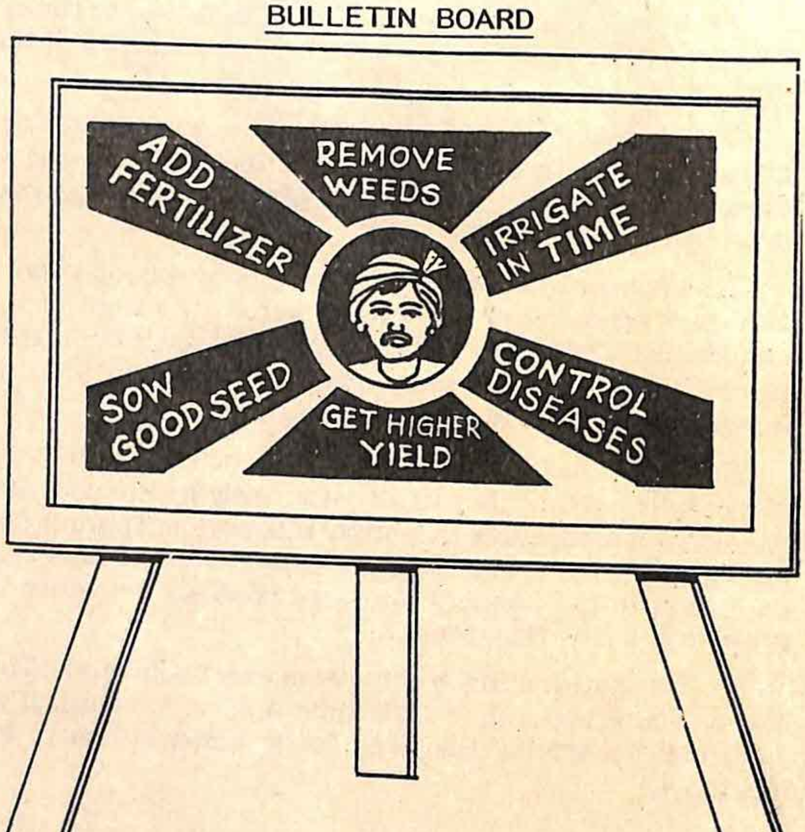


Fig.2

Five Guidelines for Bulletin Boards:

1. Present a single important idea.
2. Dramatize the presentation of that idea.
3. Select inexpensive bulletin board materials that are expendable.
4. Use simple construction techniques.
5. Use all possible devices that involve the learner actively.

Three Underlying Goals:

1. Arouse interest
2. Stimulate thought
3. Get Action

Values of Working with Bulletin Boards:

1. Serve as a place for the display of outstanding work done by pupils.
2. Provide a stimulating room atmosphere and create a cheerful and interesting classroom.
3. Can serve as a pretest or test of student's attitudes or understanding of upcoming units.
4. Display certain processes and procedures in an easy-to-view manner.
5. Information can be viewed at the individual's own pace.
6. Furnish an outlet for the artistic and creative ability of students.
7. Provide for common social experiences through group effort in arranging displays. This develops co-operation and team work as well as leadership and self-confidence.
8. Eliminate the duplicating of much material of which there is only one copy.
9. Afford an appropriate place for posting announcements, assignments, honor rolls and the like.

10. Provide a suitable space for the displaying of pertinent clippings, news, pictures, posters, photographs and similar materials.

Focal Point of Board:

1. Should be beginning of story, theme.
2. Gets attention.
3. Can be on table or stand in front of board.
4. Use actual object.

Planning a Bulletin Board:

1. Decide on what to display
2. Choose a "catchy" caption
3. Sketch a plan. It should have:
    a. Unit—similar shapes, line, space blockings.
    b. Balance—create interest, not confusion.
    Informal vs. Formal
    c. Simplicity—surround display with empty spaces.
    d. Emphasis—point out important items.
    e. Description matter—brief, to the point.
    f. Variety
    g. Eye appeal
    h. Harmony
    i. Contrast
    j. Neatness
    k. Space
4. Prearrange the material.
5. Set up the board.
6. Evaluate the board.
    a. Effective title (short, personal, active verb)
    b. Suitable subject (timely, personal)
    c. Attracts attention (stopping power, inspires student questions)

   d. Holds interest (encourages study)
   e. Conveys message (accomplishes purposes)
   f. General appearance (simple, balanced, orderly)
   g. Workmanship (neat, well-constructed)

7. Take down and replace often.

GUIDES TO BUILDING A GOOD BULLETIN BOARD

Simplicity

Simplify shapes, lines, spaces, and colors in order to present a readable display. A good rule to follow: "When in doubt, leave it out".

a. Restrict your display to a few carefully selected colours.

b. Do not crowd too much material into one space. It is better to plan a series of displays with a great quantity of material.

c. Avoid being arty or pretty, which emphasis on organization, colour, and texture, and not on "cuteness.'

d. To secure attention and carry your message surround your displayed material with empty space.

e. Avoid distracting, patchy subject headings. Relate labels.

f. Place informations captions in limited areas or units inside the display area, not at the edges.

Unity

a. A dominance of similar shapes, lines, and space will help to maintain a family relationship. Disunity is distracting.

b. Emphasize a basic line direction throughout the design.

Emphasis

a. To focus attention on any important item, set it apart with isolating space, value contrast, color contrast, texture contrast.

b. Point out or encircle an important area with a directional device such as an arrow, line, or string.

c. Project the illustration into space with a three-dimensional device when possible.

Balance

a. Informal balance creates more interest than does formal balance.

b. Formal balance represents and equal distribution of visual weights, which invites quick and final inspection and stresses dignity in the design.

c. Diagonal plans should be avoided because it creates two awkward areas on either side of the diagonal axis and urges the eye to move out of the display.

11. THE POSTER

WHY

The poster implants quickly an important single idea in the mind of the viewer or reminds him about it.

WHERE

A poster is both simple and dynamic. It is also essentially simple for there is not enough time to involve the viewer, who may be just a passerby, in detailed study. The poster should also be striking enough to attract attention or its usefulness is lost.

WHAT

The poster is, therefore, a simple pictorial illustration designed to attracts attention, to give ideas, facts or events.

The poster must have strong eye-appeal, fit in to attract attention and also have enough holding power to put its message across.

To attract attention, the prominent feature of the poster must stand out sharply. This may be a photograph, a drawing or a striking design.

The drawing should be vivid and striking enough to reach out and command attention. From it the eye travels quickly to the printed message.

A good poster is both appropriate and timely. It has also a high degree of dramatic touch.

In a good poster, the picture itself should tell the story without the use of words. Where posters also rely on words to convey the specific idea or message, two things must be

POSTER

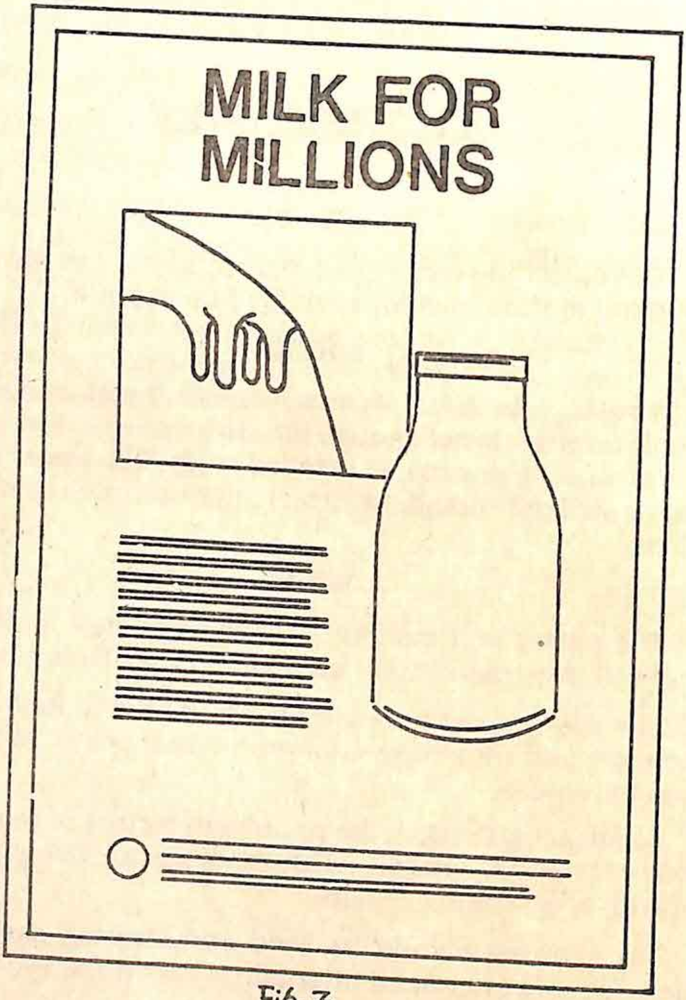


Fig. 3

remembered. As few words as possible be used, and key words be made to stand out by means of type size or position.

Posters which are effective are also pleasing to the eye. They have good design, good lettering and attractive colour. The attractive poster is pleasing, and, therefore, interesting and as such effective.

WHEN

A poster has many uses. It can motivate, arouse interest, remind or advertise. Among these the first could be the motivation.

For example, if you want to arouse curiosity or interest in a particular subject, a poster is a very effective medium of communication.

The second use of poster is to serve as a reminder. If any campaign is being launched or if there is any forthcoming important event, a poster can do the job very effectively.

WARNING

But remember: a poster which is seen too often tends to become a part of environment. When it loses freshness it loses its principal value—the power to attract the eye and to impress the observer with an idea.

12. THE CHART

The chart is not only a good visual by itself but also a very effective visual aid.

WHAT

The chart, at its simplest, is a tabular statement giving information. But in its most popular use, it is designed to visualise relationship between key facts or ideas a in an orderly and logical manner.

WHY

The chart is good when you have to present materials symbolically, summarize information, and present abstract ideas in a visual form.

TYPES

There are many types of charts. Some important being the Flow Chart, the Pie Chart, the Bar Chart, the Line Chart, the Pictorial Chart and the Suspense Chart. Then there is, what is popularly known, as the Teaching Chart. There could also be combination of two types of charts, depending upon the type of information you want to give and how you want to present it.

The Flow Chart: When you want to explain the process of making of any particular product or the preparation of any recipe you can use a *flow chart.* In both pictures and words, it tells the story step by step. As such, the information given is easier to understand, easier to follow.

The Pie Chart is a circle chart. It is a circle the sectors of which are used to represent component parts of a whole. Such items of information as the distribution of expenditure

PIE CHART

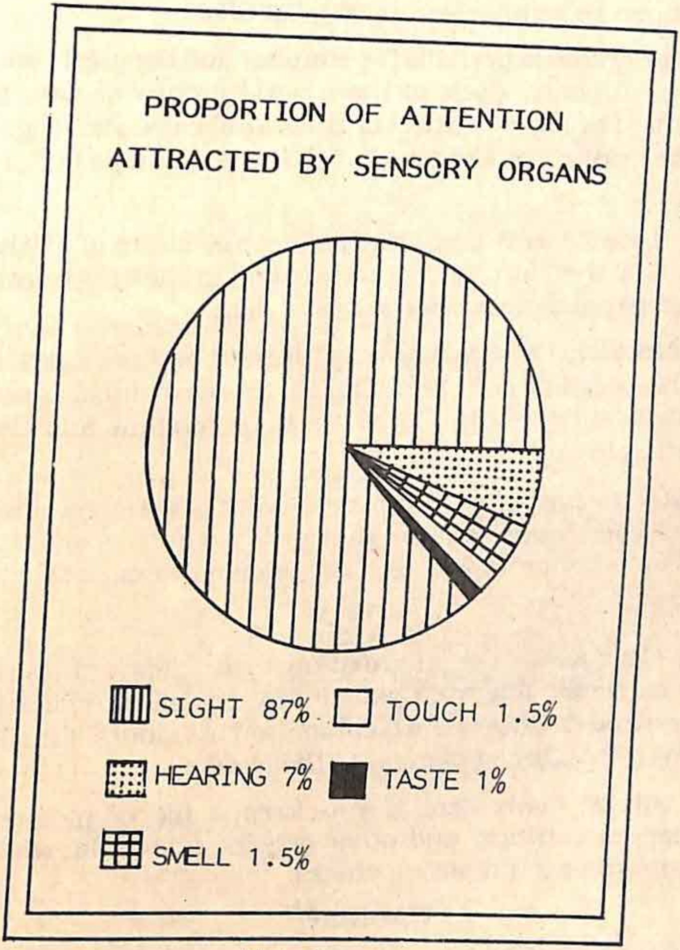


Fig. 4

of an institution or proportional sources of a particular product can be represented by the *Pie Chart.*

The Bar Chart is perhaps the simplest and the most commonly used chart. Each of the several groups of data is represented by either vertical or horizontal bars. The length of the bar expresses the amount or the percentage of data presented.

The Line Chart is probably the most accurate of all the charts. It is, therefore, particularly useful in showing trends or relationship between two series of data.

The Pictorial Chart is naturally the most popular chart. It is just like a bar or line chart. Only in this case illustrations or symbols are used to make it easy to understand and also interesting to any reader.

Lastly *the Suspense Chart.* As the very name suggests, it involves some suspense on the part of the viewer. This makes for a better appeal and also adds a dramatic touch.

HOW

Be clear about the information to be depicted. Make rough sketches, illustrate your ideas, try different layout patterns and decide on the combination of colours. Finally, transfer the sketched plan on to the chart.

It will be convenient if you keep a file of pictures, newspapers cuttings, and other graphic materials, which you can utilise in preparing charts.

WARNING

The making of the charts involves two basic facts. There should be a comparison or some relationship. For example wheat production for single year is not suitable for use in a chart unless it is compared with wheat production in other years or with the production of other grains in the same year.

Without some comparison or relationship to make the data meaningful, there is little advantage in presenting the data and statistics through this medium.

13. FLASH CARDS

FLASH CARDS ARE BRIEF VISUAL MESSAGES (DRAWINGS/PHOTOGRAPHS) ON POSTER BOARD CARDS

They are flashed one after the other in a logical sequence before the audience to bring home any idea. The message is displayed to emphasize the important points, in a presentation. They are best suited for showing to small groups of not more than 30 people. Like a flipbook, flash cards are especially suited to step by step teaching.

A set of flash cards can be made quickly, with inexpensive material available locally. They can be carried easily and used without the help of any equipment or power.

WHAT YOU NEED ARE

- Card board (may be sections of a card board box);
- Illustrations;
- Colours; and
- Letterings.

To make your flash cards effectively first study your talk and select or pick out the main thoughts you want to impress the audience. Arrange them in a logical order according to your talk.

HOW TO PREPARE

- Collect information;
- Select the essential points;
- Sort them in logical sequence;

FLASH CARDS

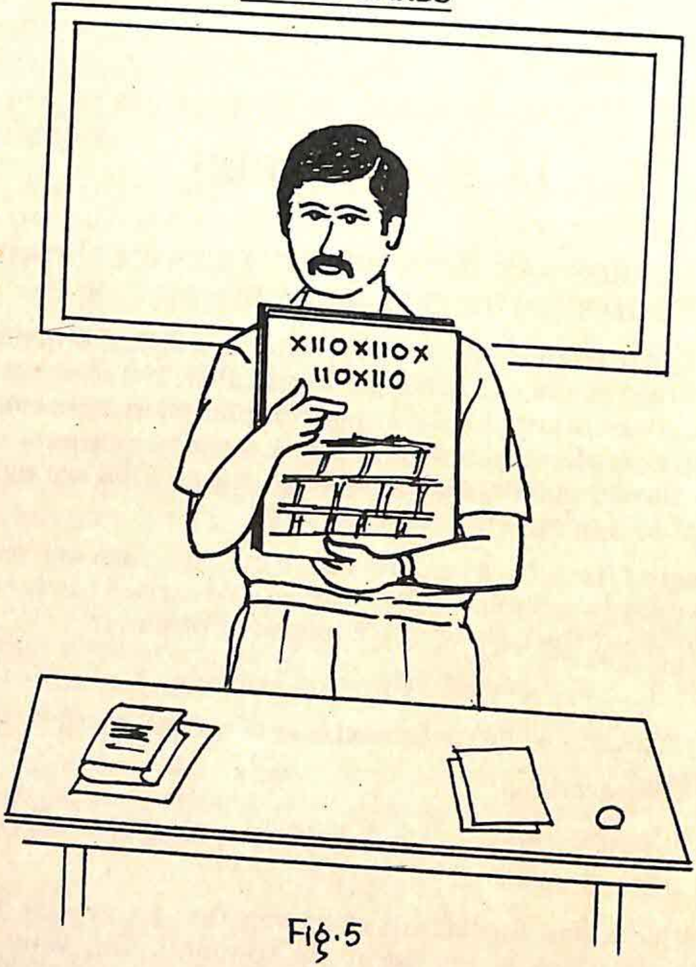


Fig.5

- Visualise one idea on one card.

Think of a picture to effectively illustrate on idea.

The picture can be a simple drawing, cartoon, photograph or cuttings from magazines and newspapers.

Make sure that your illustration is large enough for your entire audience to see.

Remember that every one who sees the flash card must be able to UNDERSTAND the illustrations QUICKLY and EASILY. So do not use complicated drawings.

Let your pictures show action and bring out the idea prominently.

USE FEW WORDS, IF YOU MUST

Sometimes you may need words in the 'caption' to supplement illustration. The fewer the words the better. The best flash cards are those that need a few or no words. But this depends upon your audience's ability to read and understand.

See that the message is BRIEF and to the POINT. It is better to limit the caption to five or six words. If you find it difficult to write the words properly, you can cut out letters from magazines, or newspapers and paste them on the card. It is better to use all capital letters.

USE COLOURS

Colour attracts. It creates interest in the human mind. So give colour to your pictures. Select colours to fit the background to provide good contrast. But do not use too many colours.

SIZE OF THE CARDS

Size of the card depends on the number of people in your audience. The size should be such that the person in the back row can see them clearly. After all, flash cards are used as visual aids to teach people in groups. For a group of 30 or less, use flash cards of the size 22" x 28" (55 cm x 75 cm) and for a small group of audience, say 10 or 15, you can use cards of the size 10" x 12" (25 cm x 30 cm).

NUMBER OF CARDS IN A SET

It is not worth to have too many cards in a set. Best to limit your cards to 10 or 15 for any one talk.

WRITE THE TALKING POINTS

It will help you to be precise in your talk if you write the talking points on the back of the card. Write the points on the right hand corner on the back side. For the first card, write the talking points on the last one: for the second on the back of the first card and so on.

REMEMBER THE FOLLOWING WHILE PREPARING THE CARDS

- For each card make a rough layout on an ordinary sheet of paper of the same size of the card.
- You can use cut-out pictures, photographs from other publications, printed charts, posters, etc.
- You can trace out outlines of pictures or drawings already published in the journals, etc.
- Number the cards serially.

HOW TO USE FLASH CARDS

After all, the flash cards are only an aid for teaching. So, you have to use them cleverly during your talk. Orient your talk in such a way that while showing a card the interest of the audience is aroused and maintained.

The following are some tips for making best use of your flash cards:

- Rehearse the presentation several times before trying them on the audience.
- Do not allow anyone to sit more than 20 feet away from you. Don't let anyone be far off to the side.
- Arrange the cards logically—picture sides face up.
- Hold the cards chest high so that your audience can see well.
- Turn to different angles (holding the flash card) so that

every one in your audience can clearly see.

- Explain No. 1 card with the aid of the talking points written on the back of the last card.

  The Slip No. 1 card behind the stack flashing No. 2 and explain No. 2 with the aid of the points written on the back of No. 1.

  Like the repeat until the whole series is finished.
- Be a good 'showman'. Do not be clumsy while flashing the cards.
- Summarize the main points at the end of your talk.
- Pass the whole stock of cards to a member of the audience at either end of a row. Ask him to look at the top card and pass it on. Thus, the audience should see all cards in sequence.
- After every one has seen the cards individually invite questions and answer them. Make sure you know the answers. Prepare thoroughly for this presentation.
- Where larger flash cards are used you may find it convenient to place the cards on an easel. Slip the used card behind the set or remove it and place it face down on a nearby table.

REMEMBER

- Rehearse
- Demonstrate
- Pass out the cards
- Invite questions and answer them
- Follow with other audio-visual material.

14. FLANNEL GRAPH

The flannel graph is one of the most adaptable and flexible teaching aid. The materials can be presented to the audience in a step by step manner with the help of separate pictures which ultimately lead towards building up of a composite story. Drawings, titles, illustrations and headings may be added at will and associations clearly demonstrated. Materials can be re-arranged, developed and simplified as per convenience.

Pictures, illustrations, captions and other symbols prepared on light cards or stiff papers, banked with felt or sand paper are usually placed on a board covered with rough textured cloth or flannel cloth. The two rough surfaces interlock on contact and a light temporary adhesion takes place. If the flannel board is lightly brushed before use this adhesion is improved.

Flannel boards may be quickly improvised by stretching a flannel cloth over a portable chalkboard (90 x 120 cms or 3 x 4 feet) and securing it with large spring clips. A permanent board may be made by lightly gluing cloth to an hard board or a plywood surface. While applying glue care must be taken so that it should not be permitted to penetrate the cloth or it will spoil the working surface and the adhesive quality of the board will be impaired. Flannel boards can be more efficiently used if they are set at a slight angle to the vertical. The colour of the flannel cloth should be such so as to give a good contrast with the flannel graphs placed upon it. Black, dark blue, dark green or gray cloths may be selected as colour of the cloth.

Preparing the Flannel graphs—In order to prepare the

FLANNEL BOARD

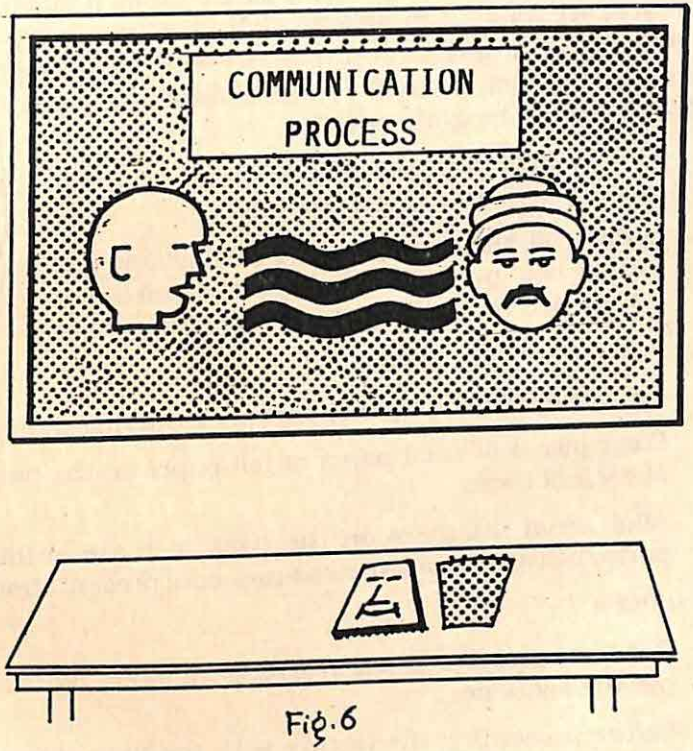


Fig.6

flannel graphs the different techniques of drawings stated earlier, maintaining regular paper clippings of different kinds of pictures from newspapers and magazines provide a good source of material from which you can select your pictures. With all these, you can prepare your own material even if you are lacking in artistic skill. A picture may be projected on to a piece of stiff paper with the help of epidiascope and then it can be copied. The following process has been found to be quite effective:

1. Draw a light outline of the projected material using a soft pencil and light pressure.
2. Switch off the projector and in daylight condition draw a bold outline following the pencil line using a felt tip pen or black crayon.
3. Add colour very lightly.
4. Cut out the different parts/pictures in varying shapes.
5. Paste pieces of sand paper or felt paper on the back of each of them.
6. Allot serial numbers on the back of these cutout parts/pictures as per their sequence of presentation.

Presentation

1. Rehearse presentation and arrange different parts as per the sequence.
2. Before presenting the lecture with the help of flannel-graphs, ensure that the audience can see them.
3. Stand to one side of the board when talking and placing pictures on the flannel board. While presenting flannel-graphs hold them in such a manner that they are concealed in your hand so that the pictures are not seen before presentation.
4. Donot clutter up flannel graphs with too many parts so as to create a confusion.
5. Repeat presentation if necessary.
6. Call for questions and clarify confusions.

Flannel graph has its limitations. Apart from the flair and aptitude on the part of the extension worker needed in presentation, it is often difficult to use them at outdoor meetings where a breeze may blow away the parts/pictures from the flannel board. In such situations, however, a magnetic board may conveniently be used instead of flannelboard. It possesses all the flexibility of the flannel graph, and even moderate gusts of wind cannot move the parts kept in place by magnetic attraction. The working surface of the magnetic board is usually coated with chalkboard paint which not only gives it the matt background, but also facilitates the use of both chalk and magnetic symbols on the same surface. The same parts of the flannel graph pasted with magnetic tape instead off sand paper or felt paper may be used on the magnetic board.

15. FLIP CHART

The flip chart of flip book is a good visual aid. It resembles an album of drawings, pictures, charts or even calendar. It is an aid and assist you to tell a story. It will help you get your points over to your audience in a more lively and permanent way.

The Flip Chart offers You Many Advantages

- * You can use the flip chart to illustrate your subject in teaching.
- * In your lectures.
- * It can be prepared with a few simple tools and materials available locally.

You Can Use it to Teach Such Things as

- * Kitchen gardening.
- * New cultivation practices.
- * Planting practices.
- * Use of fertilizers.
- * Child care and feeding.
- * Pest control.
- * New variety that yields high, etc.
- * The basic food groups.

YOU CAN MAKE IT YOURSELF

You require

- * **Two wooden rectangular covers of 15" x 20" of hard-**

FLIP CHART

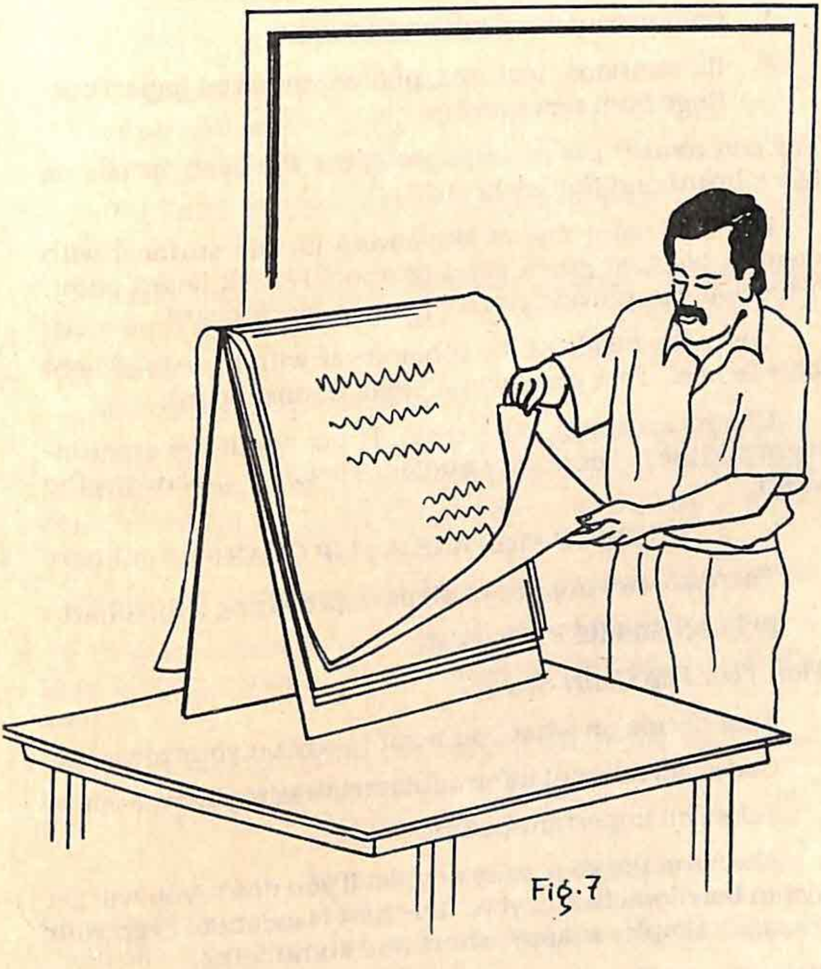


Fig. 7

board or card board. (Cover are joined on one side with hinges, bolts and nuts or cord).

- Sheets of paper.
- Colour pencils or ink and brush.
- Illustrations, pictures, photos, coloured paper, cuttings from newspapers, etc.

You can convert the cover pages of the flip book for use as black board and flannel board.

For that paint one of the covers (inside surface) with opaque, black or green paint or special black board paint. Thus you can provide yourself with a black board.

Cover the inside of the other cover with a piece of light blue flannel. That gives you a small flannel board.

Choose an appropriate topic. Think about the environment and the needs of your audience before you plan any flip chart.

HOW TO PREPARE A FLIP CHART

There are two important steps in preparing a flip chart :

(i) PLAN and (ii) PRODUCE.

Plan Your Flip Chart Story

First decide on what you want to say on your message.

Collect all relevant information relating to your message.

Select all important points.

Always make your story simple. If you don't, you will get lost in boredom. In fact your flip chart is meant to keep your message simple, snappy, short and stimulating.

Make Rough Visuals

Take a few small sheets of paper and construct your rough visuals as follows:

WORK SHEET

Rough Sketch or	Write what this

picture to be taken (here draw rough illustration)	visual should speak (i.e. summary of story to be told by this picture.

Special instructions S. No.
for picture or
drawing (colour scheme, etc.)

PREPARE YOUR MATERIALS ACCORDING TO YOUR PLAN

Finally make sketches for your illustrations. Bring out those points that you want to impress on the minds of your audience.

Make your drawings simple.

Make your drawings large enough. People must see the drawings comfortably. On the other hand small illustrations demand visual effort and, therefore, they detract interest from the subject.

You may use large photographs instead of illustrations.

Suggest action in your drawings or select photographs that suggest action. 12 to 15 drawings are enough in the series.

Series must develop the subject gradually and in an easy-to-understand manner.

USE COLOUR

Use attractive colour combination as colour illustrations create more interest. Three or four colours are enough. Avoid all extreme colours and use most appropriate colours and that these harmonize best.

USE SHORT SENTENCES

Use short sentences: If your illustrations must carry explanatory sentences, these should be brief. It is desirable that your drawings express by themselves, in a lively way, the ideas they are meant to portray.

BIND THE FLIP CHART THIS WAY

Drill a hole on the mid point about 3/4" from the lower edge of the card board. Pass through this hole a piece of cord about 1/8" thick and 11 inches long. Make a knot at the end. Make a vertical slot on the mid point of the other cover's lower edge.

Pass the cord through the slot and pull it until the second knot catches in it. The flip chart will stand up like the letter 'V' upside down. But a simple form of a flip book can be made by merely stapling sheets of paper together at the top or punching holes and connecting them with a cord, like any photo album. But this cannot be made to stand on its legs. One has to hold it.

PREPARE THE SCRIPT

Once you have your collection of charts between the covers in the order—prepare a script telling the story of each chart.

Glue on the back side of each illustration, the relevant material for the next drawing with the help of such notes. Your talk will be lively and continuous.

REMEMBER THAT YOU SHOULD

- Rehearse well before presentation
- Make sure that all members of your audience will be able to see and hear you, comfortably.
- Select a suitable spot or the best location for your flip chart.
- Tell a story or anecdote to introduce your subject and develop your topic and summarise your main points.

Finally invite your audience to ask questions and answer them in a friendly way. Then evaluate—to find out how your audience understood you.

Flip chart makes you a better teacher, a better communicator and a more confident talker. Try it. It works.

PART - C

PROJECTED VISUALS

16. EPIDIASCOPE

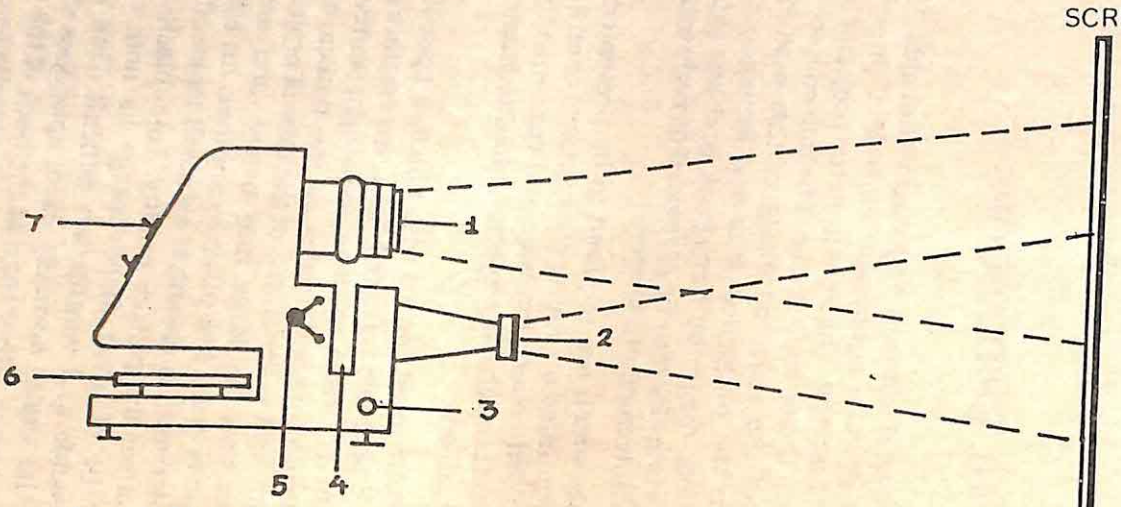
Among the several kinds of projected visual aids, Episcope is the only piece of equipment capable of projecting non-transparent material. The light from the projector lamp is concentrated on the opaque material held in contact with a glass plate and the reflected image of this material is directed through the projection lens and focused on the screen. Illustration, diagrams from book and any printed matter of appropriate size may be presented directly without the need for any intermediate process.

The materials which are required to be presented frequently may be mounted on sheets of cardboard or on a long strip of paper folded concertina-wise and conveniently arranged for feeding through the projector. Mounted materials should never be rolled.

The epidiascope must have a very efficient optical system to gather all possible reflected light, necessitating the use of large diameter lenses and a powerful light source. The most powerful projectors will need some mechanical aid for cooking for much heat is generated at the time of projection. Such projectors may be large and heavy, and are not convenient to carry from one place to another. An efficient form of room blackout is essential as small leaks off light may seriously affect the picture quality. Total black-out of the room may be of great disadvantage as note taking becomes impossible and ventillation difficult. Due to the short throw of the lenses normally used, episcopes should be placed in the centre rather than at the back of the room. It is better suited for more permanent installations like training centres.

Fig.8

EPIDIASCOPE



1. OPAQUE PROJECTION LENS
2. SLIDE PROJECTION LENS
3. LEVELLING FEET
4. SLIDE HOLDER
5. SLIDE/OPAQUE PROJECTION KNOB
6. OPAQUE PLATFORM
7. ON/OFF SWITCH

Epidiascope may be very effectively utilised for the copying of materials needed for the preparation of other kinds of visuals like charts, flannel graphs, posters etc.

Usually little is required in the way of maintenance as there are very few mechanical parts. It is important however to keep the reflectors and all other glass surfaces and lenses clean to maintain maximum efficiency and to keep the projector covered up when it is not in use. Do not however, cover it until complete cooling has taken place.

17. OVERHEAD PROJECTORS AND OHP TRANSPARENCIES

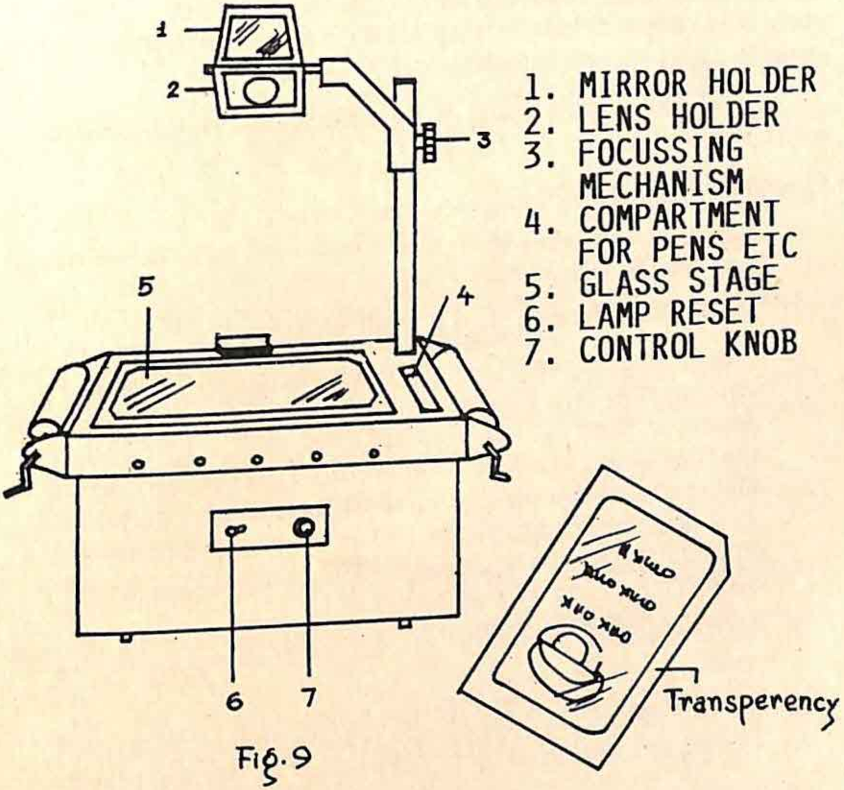
BY USING OHP

1. You can present to any size group in a fully lighted room. The result is better group attention and participation.
2. You face your audience. You'll have better meeting control and will be able to pick up group reaction immediately.
3. You are using a very personal presentation tool. The overhead projector is the part of you that shows others what you're saying.
4. The on-off technique directs attention to you or the screen. If you want to make a verbal point, turn off the machine and all eyes will turn to you.
5. You can reveal material point by point. No one will be reading ahead. You control the pace.
6. The audience isn't distracted by the machine. There is little noise or other distraction.
7. Anybody can operate the equipment. It's mechanically simple.
8. May be the most important point of all: Overhead Transparencies can be made quickly and inexpensively. By quickly, we mean minutes.

THE OVERHEAD PROJECTOR

The overhead projector is one piece of audio-visual

OVERHEAD PROJECTOR



1. MIRROR HOLDER
2. LENS HOLDER
3. FOCUSSING MECHANISM
4. COMPARTMENT FOR PENS ETC
5. GLASS STAGE
6. LAMP RESET
7. CONTROL KNOB

Fig.9

equipment that has almost completely revolutionized today's classroom methods of teaching. This piece of equipment has many advantages that readily appeal to the teacher. Ease of operation, focusing simplicity, and the fact that this piece of equipment can be used in the front of the room lends itself to good teaching techniques.

Listed below are some suggestions when using the overhead projector.

Placement of Projector

1) Place the screen where the bottom extends down no lower than eye level.
2) Place the projector in the front of the room.
3) Mount the screen in the front left corner of the room if you are righthanded and in the front right corner of the corner if you are left-handed. For the right-handed teacher where the screen is mounted in the left corner of the room, the teacher then stands by the projector and uses the right hand to write on the transparency and, at the same time, projects the image on the screen so that no ones view is blocked.
4) The overhead projector can be used in a brightly lit room.
5) If the audience is large, increase the distance between the screen and projector and a larger image will result.

Use of Projector

1) The on/off switch can be used to transfer attention from the screen back to the teacher and then back to the screen. By simply turning off the switch when the teacher has made a point on the visual, he will have focused the students' attention back to him. Do not leave the light on the projector with projected materials for long periods of time after you have made a point. Students will tend to ignore what the teacher says and to look at the materials on the screen if this is done.
2) Place the visual on the overhead projector with the light switched off and when the desired time for the

visual comes, switch on the light and the image immediately is transferred to the screen.

3) If the visual consists of several lines or items of material, project only one line of the visual at a time. Pick any opaque sheet of paper and cover the remaining transparency and then separately move the opaque material down one line at a time when the desired projectual is ready for use.
4) In using the overhead projector, make sure that you stand to one side of the projector. This is one advantage of placing the screen in the corner of the room. The teacher can stand on either side of the projector and no students' view will be obstructed.
5) Check with the manufacturing company who made your specific overhead for cleaning methods to clean the lens.

Summary—Do's and Don'ts when using the Overhead Projector

1) Position the transparency before turning on the light.
2) Keep the projected information towards the top of the screen.
3) Use the uncover or revelation technique when several lines or points are projected.
4) Keep projectuals simple.
5) Use a maximum of six or seven words per line in a visual.
6) Don't stand with your hand on the light stage.
7) Don't leave the projector light on when nothing is projected.
8) Don't move the transparency or make rapid gestures while the light source is on the screen.
9) Don't use ordinary typing for transparencies.
10) Don't move the projector while the lamp is turned on.

11) Don't move the projector until the lamp has had sufficient time to cool off, or the bulb may break.

Advantages of Overhead Projection

1) Simplicity of operation
2) Position of the teacher (face the audience)
3) No change in classroom lights
4) Horizontal writing surface
5) Advance preparation of projectuals
6) Utilization of dramatic effects
7) Large image
8) Identify with user
9) Flexibility and versatility
10) Personalized presentation

Disadvantages of Handmade Transparencies

1) Handmade transparencies, unless done with ink, do not keep well. Grease pencil marks smear.
2) They often lack the professional look which can be obtained with some other process.
3) In terms of time, this can be the most expensive of transparency. Tracing illustrations can be a slow process.

Heat Transfer Transparencies

The heat transfer (also called "thermal copy" and "dry heat") process of making transparencies makes it possible to produce a finished transparency from almost any original in a matter of seconds.

Process for Making

1) Place master, face up, on a flat surface.
2) Place fax-film on the master. Film is usually notched to indicate the coated side which goes against the master.

3) Adjust heat control setting to proper position.
4) Run test strip (less necessary after experience).
5) Feed master and film into machine.

Colouring and Lettering

Use same materials as for handmade transparencies. The heat transfer process may also be utilized to produce a low-cost "flimsy" polyester transparency (polyester such as that used to protect dry cleaned clothing or plastic sandwich bags—can be used only once).

Colour-Lift Transparencies

Most frequently an instructor will see that favourite and truly appropriate colour (or black and white) picture in a magazine, wishing he had some way of showing it to his class. A rather inexpensive and simple procedure is possible for lifting pictures. The following materials are needed:

1) Transparent adhesive-backed plastic contact film such as "Contact" brand wall and shelf covering.
2) Non-heat sensitized clear acetate film at least five mils thick such as reprocessed x-ray film of commercial materials such as the K+E brand "Mercury Clear Acetate Film."
3) A tablespoon, or hard, smooth roller like a socket from a socket wrench set or a linoleum roller.

Mounting Transparencies for Projection

Some of the advantages of mounting transparencies are:

1) It looks better and cuts out unnecessary glare from the area around the visual.
2) It gives the transparency rigidity, making it easier to use and file.
3) It helps keep the visual clean because it is not handled by the film.
4) It provides writing space for labeling and notes.

Steps in Mounting a Static (Non-Manipulative) Mount

1) Work on a clean, bright surface. Dust and dirt can easily scratch and permanently damage the transparency film. A bright or light-coloured surface will make the visual show up better and enable you to properly center the transparency on the frame.
2) Keep the baseline of the visual parallel to the edge of the mount.
3) Tack (tape) the film to the mount at two film corners.
4) Check to see if it is properly centred. Unless it is a temporary transparency, tape down the film on all four sides, using a non-oozing tape that will resist drying out.

Steps in Mounting Dynamic (Manipulative) Mount

1) Place all overlays on the static and check registration. If they have all been exposed in a uniform manner, you can mount all overlays with the emulsion side down. They will lie better this way as the film will curl and will be uniform.
2) Check for adequate marginal area on overlays for hiding. (You may need to move the static to accommodate the overlays).
3) Mount static, taping all four sides.
4) Add overlays in same sequence in which they will be used, hinging each one carefully to keep it in register. If the overlays' sequence is absolutely rigid, you can hinge all from the same side. If a flexible sequence is desired, hinge overlays from different sides of the mount.

18. PHOTOGRAPHY

Photography has a very important role to play in the process of development of different kinds of visual aids like slides, film strips, photographs, motion pictures etc. In view of this a thorough working knowledge regarding the camera and its utilisation will be helpful.

BASIC PRINCIPLES OF PHOTOGRAPHY

The Camera: How it Works

To take a picture, three basic things are needed (other than a subject and photographer)—LIGHT, a CAMERA and FILM.

Light reflected from the subject through the camera lens and forms a latent image (present but not visible) on the light-sensitive film. When processed, this latent image will become a visible image either in reversed tones, as in a negative, or in positive tones, as in a colour slide.

For good pictures, the film must be exposed to the proper amount of light. If too little light reaches the film, the resulting picture will be too dark (underexposed). If too much light reaches the film, the picture will be too light (overexposed).

The camera must be adjusted to allow the right amount of light (the correct exposure) to reach the film.

Different Kinds of Cameras

1. *Box Type Camera*—Simplicity, generally there are no camera settings to make, no exposure tables to contend with. Picture taking is merely a matter of load, aim

PHOTOGRAPHY

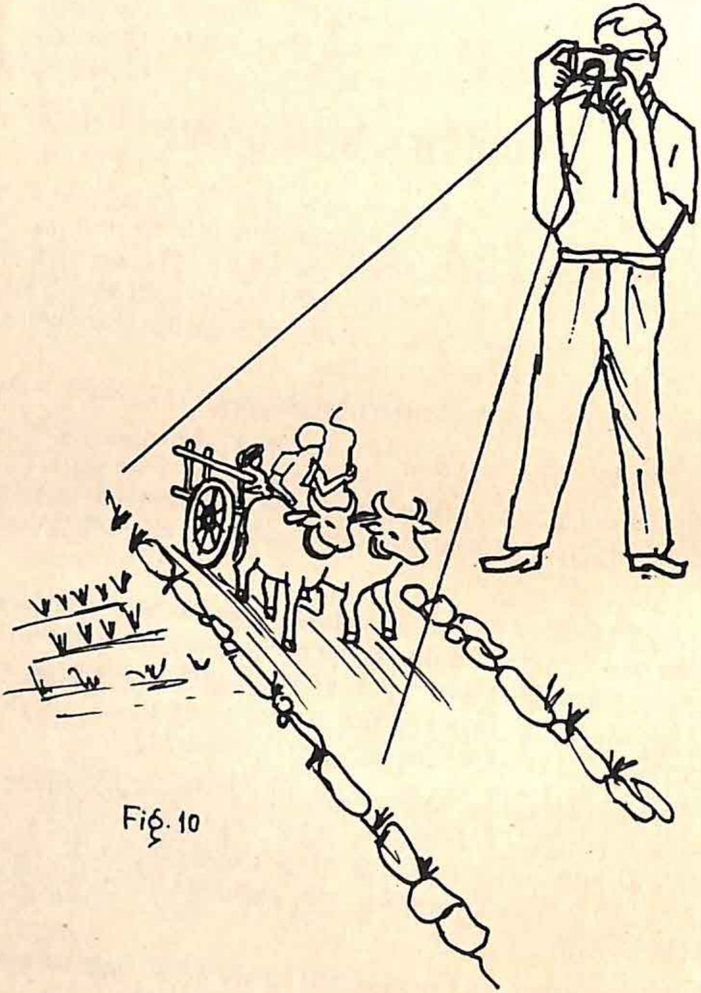
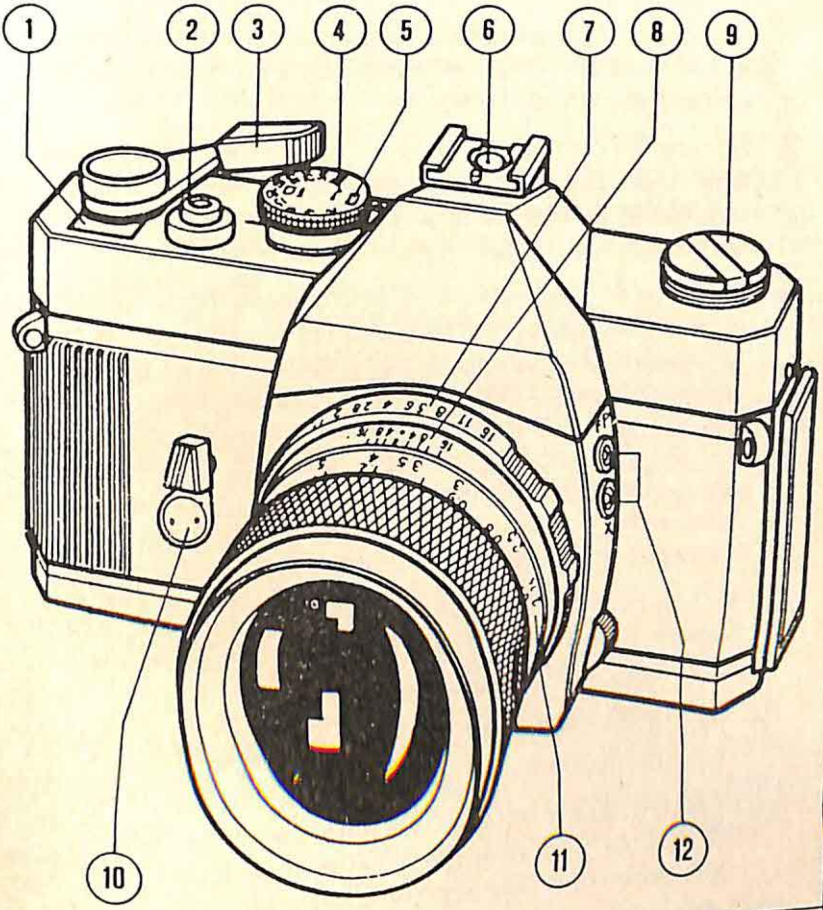


Fig. 10



CAMERA CONTROLS

1. FRAME COUNTER
2. SHUTTER RELEASE BUTTON
3. FILM ADVANCE LEVER
4. SHUTTER SPEED DIAL
5. FILM SPEED SELECTOR
6. ACCESSORY SHOE
7. LENS APERTURE RING
8. DEPTH-OF-FIELD SCALE
9. FILM REWIND KNOB
10. SELF-TIMER
11. LENS FOCUSING RING
12. FLASH SYNC. SOCKETS

Fig. 11

and snap. If the camera is held steady, the camera cost is low and the films recommended for use with the camera are inexpensive.

2. *Semireflex Camera*—The viewfinder window is big and bright, often nearly the same size as the actual negative made by the camera. Deluxe models feature adjustable focusing and variable lens openings.
3. *Twin lens reflex Camera*—Ground glass focusing—the view of your subject is just about the same size as the actual negative made by the camera. Most twin-lens reflex cameras have lenses of 13.5 or better. Their shutters usually have a briefest shutter time of around 1/500. Square formal offers maximum flexibility in comparing your snapshots, avoiding the shifting from horizontal to vertical or vice versa encountered with camera taking rectangular pictures.
4. *Miniature Cameras*—They have tine, versatile lenses (widest opening f 13.5) with briefest shutter times at (usually) least 1/250 second.
5. *Single-lens Reflex Camera*—Exact viewing—You view the picture through the actual lens that takes the picture, whatever you see with any lens at any distance, you get. It is ideal for close-up pictures since you view right through the taking lens.
6. *Stereo Camera*—Three dimensional pictures—stereo camera has two lenses. Each lens makes a separate picture and when the pictures are viewed at the same they appear to have depth.
7. *Folding Camera*—Compactness; big pictures; variety of price ranges; and eye level of viewfinding.
8. *Subminiature Camera*—Tiny size. Descendants of cameras used originally for espionage work. Wide variety of types, many films available, many exposure on the film load.
9. *Picture in a Minute Cameras*—Prints in 60 seconds; variety of picture sizes; variety of films; single exposure

setting.

10. *View Camera*—Wide choice of films. The sheets must be loaded, two to a holder, in total darkness. Wide variety of lenses, multiplicity of adjustment.

11. *Press Camera*—Wide choice of film types. Variety of cameras sizes. Choice of view finding, focus on a ground glass, wire sports finder. Many view camera advantages.

PICTURE *COMPOSITION*

Definition: Generally speaking, the composition of a picture is simply its arrangement, or a combination of how well the elements that constitute the picture subject matter have been arranged into a relationship which effectively expresses a point of view.

Fundamentals of Composition :

1. *USE A STRONG CENTRE OF INTEREST*

   Do not attempt to make a picture tell more than one story. Placing the center of interest directly in the center of your format will create a static illusion that causes the eye to lose interest almost at once. Follow the "rule of thirds" in placing the centre of interest in the picture.

   If a secondary subject should be placed according the rule of thirds then some attempt should be made to create a feeling of depth by positioning both subjects at varying distances.

2. *DISTANCE AND CAMERA ANGLE*

   The picture angle and distance can emphasize, de-emphasize, or even eliminate an aspect of a subject.

a. *Distance*

   1. *Long Distance*—these pictures are usually establishing pictures which answer the question "where."

2. *Close-ups*—concentrate attention on the people and action, answering the questions "who" and "what."

b. *Angle*

1. Pictures taken from low viewpoints looking up tend to emphasize height and who the subjects are.
2. Pictures taken from a high angle call attention to how many there are.

Camera angle also may affect the message of a picture in other ways. . . shadows may be included or excluded, highlights caught, a background eliminated or emphasized, or foreground material dramatized or minimized.

3. *LEADING LINES*

Lines should lead into the picture from left to right and are most effective when they are strong enough to direct the attention of the eye. Almost anything can act as a leading line—a road, stream, or shadow. It's a matter of choosing the correct angle leading into the picture. Lines should lead the eye to the principle subject.

a. *Horizons* — Don't use it to cut your picture in half. If you wish to accent spaciousness in a scene, let it run below the center. Place the horizon line in the upper third of the picture area for depth and closeness.

b. *Vertical* — Don't use it to cut your picture in half. Can be used to produce a patterned effect with horizontal lines. Can frame the centre of interest. Often are used as a balancing factor to hold the eye's attention on the centre of interest by blocking its easy exit from the picture.

c. *Diagonal* — Possess a dramatic and emotional appeal and can be used to lead the eye into, through, and even out of the picture with ease. Can foster the illusion of depth (railroad tracks).

4. *BACKGROUNDS*

Should generally be simple except when they can add to the picture story in a powerful way. Camera angle and focus can eliminate it or emphasize it. Backgrounds would also be considered in giving contrast to your subject.

5. *FOREGROUNDS*

Can contain the cues that give a picture its significance. Camera angle and focus can eliminate it if desired. Foreground subjects can add depth to the picture but they should relate to the picture.

6. *FRAMING*

Using a foreground object to frame the centre of interest can be highly effective. Framing also helps fill up empty spaces. Framing objects may be branches, columns, arches, window frames, and pillars.

7. *BALANCE OF TONES AND LIGHTING*

A balance of light and dark tones throughout the picture are desirable. All light and dark tones should be in one area. To concentrate attention on the subject, make it the lightest or darkest part of the picture. The eye seeks out lighter areas first, therefore, dark areas can be used as a framing device.

By controlling the intensity of light and its direction, you can create texture, dimension, emotional impact and even change the appearance of shapes, figures. or patterns.

a. *Frontal lighting* — leads to a flat appearance and lack of contrast.

b. *Side lighting* — causes deep shadows, distortion of features.

c. *Back lighting* — is hardest to work with but can produce striking pictures.

8. CROPPING

Cropping is the cutting away of unwanted and distracting background or foreground elements from the developed photo to improve picture composition and story-telling value.

Twelve Common Mistakes in Picture Taking

1. The Double Exposure

Cause: Two pictures were taken one on top of the other because film was not advanced after making the first exposure.

Correction: Always advance film right after taking a picture. If in doubt as to whether the film was advanced, it pays to wind it ahead and be sure.

2. The Out-of-Focus Picture

Cause: Usually is the result of getting too close to the subject with a fixed-focus camera.

Correction: With the fixed-focus camera never take a picture within six feet. Everything beyond six feet will be in focus.

3. The Moved Camera

Cause: Improper holding or shutter adjustment of the camera.

Correction: Hold camera against body and take a deep breath before snapping. The faster the shutter speed the less chance of getting a blurred picture.

4. The Moved Subject

Cause: Improper shutter adjustment.

Correction: Set shutter adjustment according to the speed and angle in which an object is moving.

5. The Missing Part

Cause: Improper distance from subject.

Correction: Make sure that what you want in the picture can be seen in the view finder.

6. The Black Circle

Cause: Shutter is left open when camera is not in use.

Correction: Set shutter just before taking a picture. If shutter is found open, hold hand over lens and release the shutter.

7. The Fuzzy Foreground

Cause: Wrong depth of focus.

Correction: Focus on object in front of the subject to be photographed. Do this by reducing F-stop number of lens enough to give sufficient depth of focus so both the foreground and the object are in sharp focus.

8. The Tilted Camera

Cause: Camera is not held level.

Correction: Check the line of the horizon through the view finder.

9. The Partly-covered Lens

Cause: A finger partially over the lens while holding the camera. Dust or other foreign material on the lens.

Correction: Check lens before taking a picture for foreign material and hold camera properly.

10. Underexposure (too light)

Cause: Not sufficient light to make a good negative.

Correction: Reduce the F-stop number. Example, from F-8 to F-4. 5. Set exposure for shadows rather than for the brightest parts of the picture.

11. Overexposure (too dark)

Cause: Too much light on the negative.

Correction: Increase the F-stop number.

12. Faulty Backgrounds

Cause: Distracting obstacle in background (or foreground).

Correction: Choose simple backgrounds. If it is necessary to take a picture with a faulty background, reduce the F-stop number, thus reducing the depth of the field.

PHOTOGRAPHIC FILTER

A photograph filter is a disk of coloured glass or colourdyed gelatin cemented between two disks of glass. It is used over the camera lens for varying the black-and-white rendition of certain colours.

Filters do their work by holding back certain colours while allowing other colour of light to register on the film. This changes the final appearance of the subject on the print. For instance, if you took a picture of a large red barn with a green background and you used a red filter, the red filter would allow the barn to register heavily on the film and make it appear very light on the final print. At the same time the filter would prevent the green from passing through to the film and in the final picture the greens would show up very dark.

Sometimes it is desirable, for dramatic effects, to distort the colour values of the subject by making certain objects appear lighter or darker in the print. The filters used to obtain extra contrast in this manner are called "contrast filters." The red filter is an example.

When a filter is used to correct for the film's inability to see the subject as our eyes view it, it is called a "correction filter." The medium yellow filter is probably the most generally used correction filter.

One good rule to remember is that filters always lighten objects of the same colour.

When to use a Filter:

Often, the difference between knowing when to use a filter and when not makes the difference between an ordinary and an outstanding photograph. The beginner should not be disturbed by the wide variety of filters available. Simply learn to first work with these three most commonly used filters.

1. *Yellow Filter*

One of its primary functions is to darken the appearance of the sky in order to make clouds stand out more prominently. This filter allows most of the light from the clouds to pass through to the film, while holding back the blue light reflected from the sky. The result is a darker sky against which white clouds stand out in beautiful contrast—just as your eyes view them.

2. *Light Green Filter*

The light green filter is particularly useful for improving flesh tones especially when shooting portraits outdoors against a sky background. It also provides a more natural rendering of trees, flowers and marine subjects.

3. *Orange and Red Filters*

Although these two filters have high filter factors (require more exposure) they add dramatic effects to many an ordinary scene. Both the orange and red filters must be used with a panchromatic film like All-Weather Pan. Generally, they render the sky in deep shades of gray to black which makes the clouds stand out with extra brilliance. With a few trial exposures, moonlight effects can be made in broad daylight when using these filters. These filters also help to eliminate haze in photographic distant landscapes or making aerial pictures.

USING THE LIGHT METER

Purpose of the Light or Exposure Meter

To measure the amount of light and through calculating devices, interpret the measurement in terms of lens aperture and speed for the selected film.

Type of Light Meters

1. Solenium Cell : a) the light intensity generates an electrical current;

   b) it performs best in bright light;

   c) are more expensive;

d) small in size;

e) have high sensitivity.

2. Cadium Sulfide Cell: a) the source of energy is a mercury type battery;

   b) the cell works on the principle of measuring the resistance of the current in the circuit;

   c) works best at low illumination.

Type of Light Measured

1. Incident light — the light which falls on the subject; meter is held near the subject.
2. Reflected light — the light is reflected from the subject to the camera; meter is held near the camera.

How to Use a Light Meter?

1. Set the film exposure index to the type film in the camera.
2. Aim the light meter. Hold the meter so that your fingers do not obstruct the view.
3. Read the light level.
4. Adjust the movable scale to where the pointer points to the particular light level being measured.
5. Set your camera to any of the several combinations of shutter speed and f/stops indicated as appropriate by the light meter.

The combination of shutter and f/stop that you select will depend on whether you want:

1. To stop the action occurring in the scene (use faster shutter speed—low f/stop).
2. Depth of field (use higher f/stop—slower shutter speed).

PHOTOGRAPHY TERMS AND DEFINITIONS

1. *Aperture* — lens opening. The opening in a lens system through which light passes. These size of the aperture is either fixed or adjustable. Lens openings are usually calibrated in f-numbers.
2. *Balance* — placement of colours, light and dark masses, or large and small objects in a picture to create harmony and equilibrium.
3. *Candid pictures* — unposed pictures, often taken without the subject's knowledge. These usually appear more natural and relaxed than posed pictures.
4. *Close-up lens* — a lens attachment placed in front of a camera lens to permit taking pictures at a closer distance than the camera lens alone will allow.
5. *Coated lens* — a lens covered with a very thin layer of transparent material that reduces the amount of light reflected by the surface of the lens. A coated lens is faster (transmits more light) than an uncoated lens.
6. *Cropping* — printing only part of the image that is in the negative or slide.
7. *Depth of field* — the distance range between the nearest and farthest objects that appear in acceptably sharp focus in a photograph. Depth of field depends on the lens opening, the focal length of the lens, and the distance from the lens to the subject.
8. *Exposure meter* — an instrument with a light-sensitive cell that measures the light reflected from or falling on a subject; used as an aid to selecting the exposure setting. The same as a light meter.
9. *Film speed* — the sensitivity of a given film to light, indicated by a number (such as ASA 64), the higher the number, the more sensitive, or faster, the film. Note: ASA stands for the American Standards Association, the former name of the American National Standards Institute, Inc., (ANSI) that provides the

standards for rating film.

10. *Filter* — a coloured piece of glass or other transparent material used over the lens to emphasize, eliminate, or change the colour or density of the entire scene or certain elements in the scene.
11. *Fixed-focus lens* — a lens that has been focused in a fixed position by the manufacturer. The user does not have to adjust the focus of this type of lens.
12. *f-number* — a number used to indicate the size and light-passing ability of the lens opening on most adjustable cameras. Common f-numbers are f/2.8, f/4, f/5.6, f/8, f/11, f/16, and f/22. The larger the f-number, the smaller the lens opening. In this series, f/2.8 is the largest lens opening and f/22 is the smallest. These numbers indicate the ratio of the focal length of the lens to the effective diameter of the lens opening. f-numbers help you get the right exposure.
13. *Focal length* — the distance from the lens to a point behind the lens where light rays are focused when the distance scale is set on infinity. Focal length determines image size at a given lens-to-subject distance.
14. *Fogging* — darkening or discolouring of a negative or print or lightening or discolouring of a slide caused by (1) exposure to non-image-forming light to which the photographic material is sensitive, (2) too much handling in air during development, (3) overdevelopment, (4) outdated film, or paper, or paper, or (5) storage of film or paper in hot, humid place.
15. *Frontlighting* — light shining on the subject from the direction of the camera.
16. *Lens* — one or more pieces of optical glass or similar material designed to collect and focus rays of light to form as sharp image on the film, paper, or projection screen.

17. *Lens speed* — the largest lens opening (smallest f-number) at which a lens can be set. A fast lens transmits more light and has a larger opening than a slow lens.

18. *Parallax* — at close subject distances, the difference between the field of view seen through the viewfinder and that recorded on the film. This is due to the separation between the viewfinder and the lens. There is no parallax with single-lens reflex cameras, because when you look through the viewfinder, you are viewing the subject through the picture-taking lens.

19. *Plot (M)* — the relationship of incidents, situations, and events that forms the basis for your story.

20. *Reflex camera* — a camera in which the scene to be photographed is reflected by a mirror onto a glass where it can be focused and composed. In a reflex movie camera or a single-lens reflex (SLR) camera, the scene is viewed through the same lens that takes the picture, thus avoiding parallax. With a twin-lens reflex (TLR) camera, the scene is viewed through the top lens, and the picture is taken through the bottom lens.

21. *Shutter* — blades, a curtain, a plate, or some other movable cover in a camera which control the time during which light reaches the film.

22. *Telephoto lens* — a lens that makes a subject appear larger on film than does a normal lens at the same camera-to-subject distance. A telephoto lens has a longer focal length and narrower field of view than a normal lens.

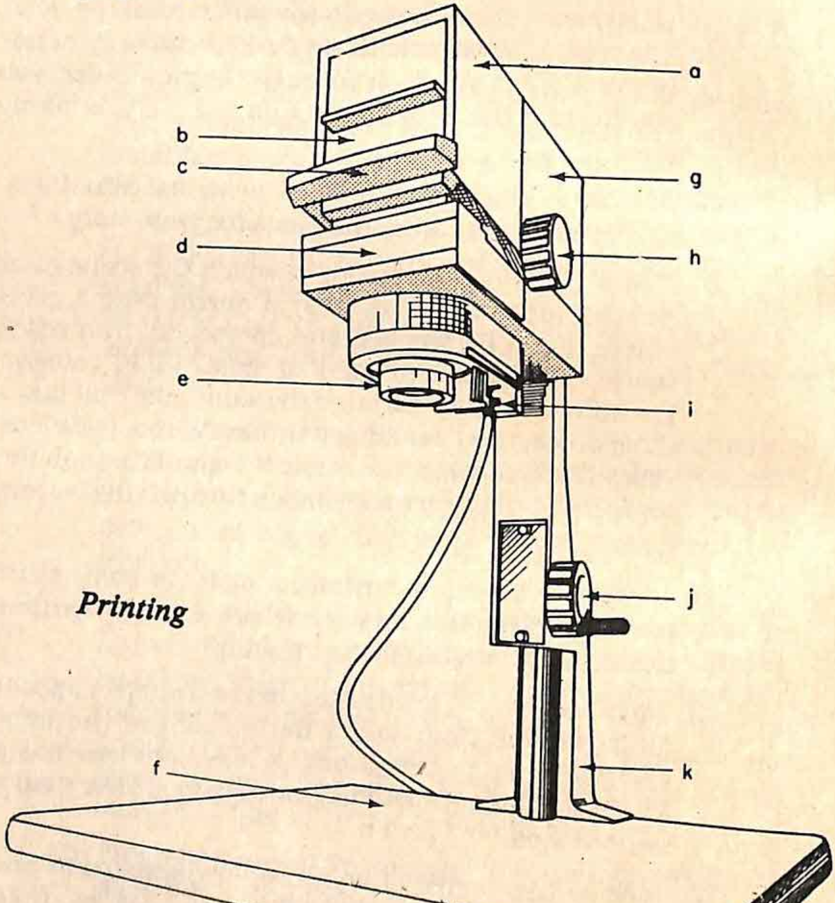
23. *Tone* — the degree of lightness or darkness in any given area of a print; also referred to as value. Cold tones (bluish) and warm tones (reddish) refer to the colour of the image in both black-and-white and colour photographs.

24. *Wide-angle lens* — a lens that has a shorter focal

length and a wider field of view (includes more subject area) than a normal lens.

25. *Zoom lens* — lens in which the focal length can be adjusted over a wide range, giving the photographer, in effect, lenses of many focal lengths.

26. *Enlarger* — Enlarger is used for enlargement of images from the negative to make large size photographic print.



(a) Condenser housing
(b) Filter drawer
(c) Condenser lifting lever
(d) Negative carrier
(e) Lens
(f) Baseboard

(g) Lamp house
(h) Focusing knob
(i) Lamp holder
(j) Height adjustment crank
(k) Socket

A TYPICAL ENLARGER

Fig. 12

19. TAKING AND PRESENTING SLIDES

SLIDE PRESENTATIONS

- Stimulate interest, hold attention
- More permanent learning (87% of brain impression by sight)
- Greater number of people can see
- Introduce new topics
- Develop background
- Review topics

Advantages

1. Low cost
2. Can make own slides
3. Can be used in semi-dark rooms
4. Easy to show actual situations
5. Easy to refer back to

Disadvantages

1. Slides lack motion
2. Not 3 dimensional

PREPARATION OF ARTWORK

Lettering

Plain Gothic letters are easily read

Sharp-contrasting is preferred to low-contrasting combinations (coloured letters on black background)

Letters should have height to width ratios of 3:5

Normal spacing with areas between letters being equal is preferred

Use of Colour

Red—arouses feelings

Orange—heating, soon excites, irritation

Black—indicates darkness, gloom

Violet Blue—stern, hard, unyielding

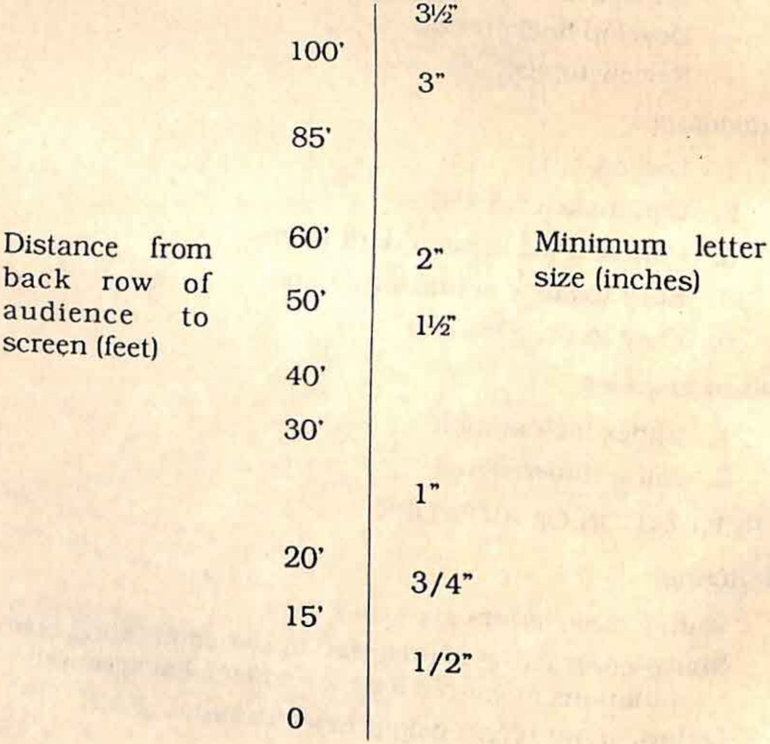
Blue—cooling, quieting

Green—restful, soothing

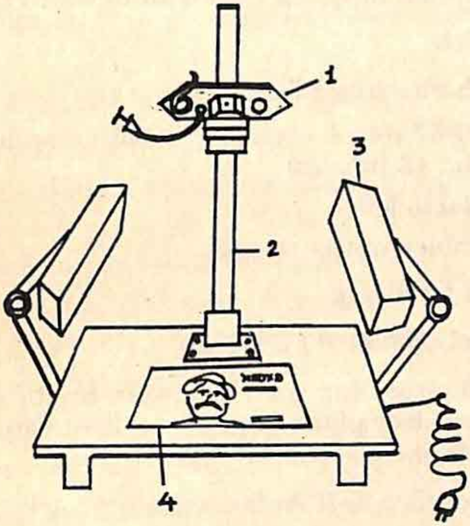
Yellow—arouses joy and gaiety

Black letters on yellow background good for gaining attention.

Minimum Lettering Sizes for A-V's



35 mm SLIDE MAKING



1. 35 mm Camera
2. Recopying stand
3. Bulbs for exposing
4. Art work

Fig. 13

Light Source

Use photofold bulbs 800/1000 watts

Original Art

Should have a 2 : 3 length to width ratio

Camera

35 mm single lens reflex

50-58 mm 1 normal lens with magnifying lens (+1, +2, and +3 powers)

Macro lens

Cable shutter release

Films for Slides

Kodachrome II (A.S.A. 25)

Slowest film; good for use in bright sunlight for scenic and outdoor photography; excellent skin tones; do not use with flash.

Kodachrome II Professional Type A Tungsten

Designed for use with photofold lights; gives a slightly cool effect; comes in 36 exposure rolls only.

Kodachrome X Daylight (A.S.A. 64)

Produces slightly warm skin tones; good basic film; works good with flash; ideal when you need flash indoors and outdoor pictures on same roll.

Ektachrome X Daylight (A.S.A 64)

Designed for people who want to process their own films; colder skin tones and whites; greens are bright and the sky isn't as dark; use in late afternoon produces slides with heavy warming effects.

High Speed Ektachrome Daylight (A.S.A. 160)

Don't use on bright sunny days; excellent skin tones; warm whites; bluish greens; rich sky tones; flash will cause dark backgrounds.

High Speed Ektachrome Tungsten (A.S.A.160)

Film designed for use with photofloods 800/1000 watts; produces normal to warm balanced tones; good for copy stand work.

In general for large projections use slower speed films; not as grainy.

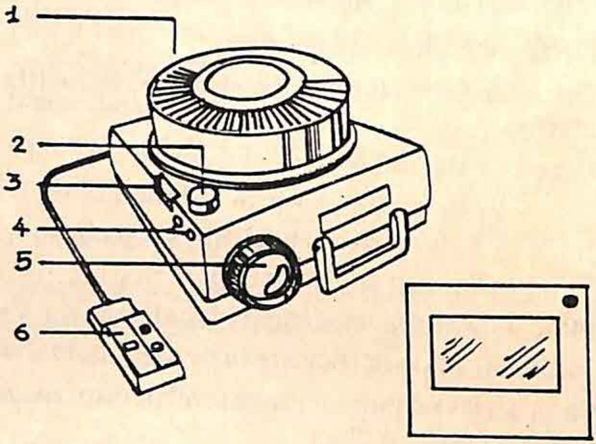
SOME THOUGHTS ON SLIDE PREPARATION

- Limit each slide to one idea
- Use slide series for progressive disclosure (this adds clarity)
- Consider the old movie techniques
    - Long shots (cover or location)
    - Medium shots (identify subject)
    - Closeup shots (detail)
- Plan your slides for a good visual pace
- Duplicate slides if they are to be seen more than once
- For a series of slides change level of camera and vary distance from subject
- Stay with one type of film for entire presentation

SLIDE PRESENTATIONS AT PROFESSIONAL MEETINGS

- Start by writing a script—word for word
- Integrate slides with script
- Edit, Edit, Edit
- Make notes/outline
    - No reading allowed
    - Scientific presentations follow basic outline:
        - Introduction - justification and/or objectives
        - Materials and methods used
        - Results—what found
        - Discussion—contrast and compare
        - Conclusions—What it all means

AUTOMATIC SLIDE PROJECTOR



35 mm SLIDE

1. CIRCULAR TRAY
2. LENS FOCUS AND RELEASE KNOB
3. SELECT BAR
4. FORWARD AND REVERSE BUTTONS
5. PROJECTION LENS
6. REMOTE CONTROL

Fig. 14

- Limited to specific amount of time will be cut off
- Slides (Visual aid) aids you in:
  - —Saying more
  - —Faster—so you can say it and get done in time
- Never apologize for a bad slide
  - —Either don't use it
  - —Or, if idea (content) is so important, then concentrate on
  - —Don't distract—create own noise
- Organization
  - —Start and end presentation with blank slide, or opaque, or Scene
  - —Place in proper sequence and number
- Practice, Practice, Practice *with* slides
- Always carry slides and notes with you personally—can borrow a tie but not a talk
- Check projector, screen, house lights, shades, p.a. system, and pointer in advance. Set up a backup.
- Some meetings will provide a projectionist. Introduce yourself to your new partner and make arrangements.
- Speak slowly and clearly—tendency for most is to speak too fast.
- Use pointer to clarify important points
  - —Don't allow it to become a distraction
  - —Maintain maximum visual contact—don't turn around
- Do not read your slide—insult to the audience's intelligence
- Do not say "This slide shows. . ."
- Avoid saying "That's all I have."

In conclusion:

Same amount of effort should be given to the presentation as was given to the actual research.

Done right:

- A. Can directly influence one's own recognition and advancement
- B. Don't forget: you are holding your colleagues captive. Be kind to them.

SLIDE SERIES AND SCRIPT

I. A slide series consists of transparencies, usually in colour for projection, all mounted in square frames, usually 2" x 2".

II. A slide series may convey information, teach a skill, or affect an attitude through individual study, group viewing, or television use.

III. Before making slides always consider this planning checklist.

- A. Have a limited topic
- B. State your objectives
- C. Consider the audience
- D. Prepare a content outline

IV. Preparation of a slide series involves 5 main steps:

- A. Preparing the script
- B. Taking pictures
- C. Processing film
- D. Editing slides
- E. Preparing the slides for use

V. Preparing the script

- A. Begin with an outline as a flexible guide that helps you include all major ideas in a way that best suits your topic.
- B. Write the script.
  1. Visuals should be integrated with it.
  2. Space the narration on the right half of the page.

3. Use left half for descriptions of slides.
4. Triple space between slide changes.
5. Edit script—if you don't need to say it, don't.
6. Don't use filler slides while saying too much.
7. Never end a script page in the middle of a sentence or statement.
8. Keep script pages loose.

20. FILM STRIPS

One of the latest additions to the list of visual aids is the film strip with its projector. It has become popular, as instructors have found it an excellent visual aid in teaching.

WHAT IS FILM STRIP?

The film strip is also called under a variety of names—such as film slide, strip film, still film or slide film.

The film strip is merely a roll of film with positive images.

It is arranged in frames, and each frame is a separate picture—printed on positive 35 mm motion picture film, which measures 3/4" x 1".

A projector is essential to project the film strip on a screen. Special film strip projects are relatively inexpensive and are small and compact.

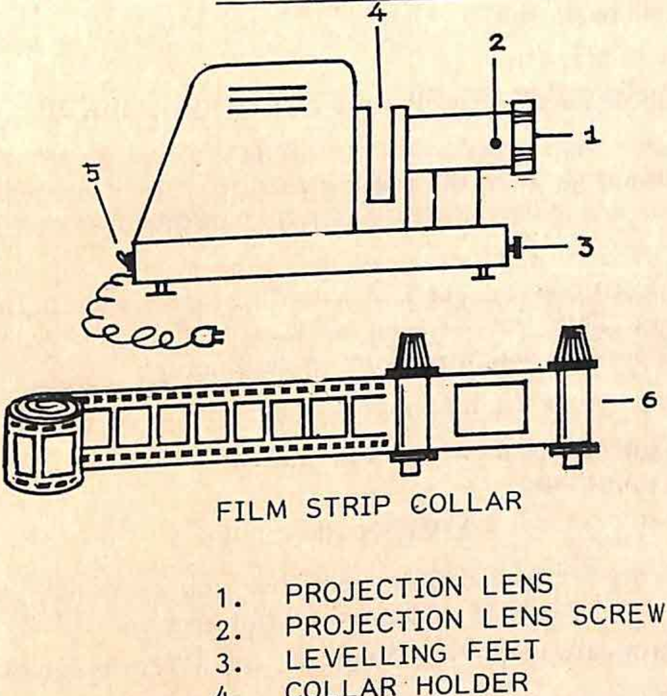
Length of the filmstrip

Film strips vary in length but they are so compact that a strip containing 50 or 75 pictures or frames occupies only half a dozen feet of film and is about the size of a spool of sewing thread when rolled in.

Film strips come in two picture sizes: the single frame—3/4" x 1" more widely used—across the width of the film. The double frame: 1½" x 1" —printed so that the width of the picture is along the length of the film horizontally.

Film strips are black and white and in colour also. Of course, colour film strips are costlier than the black and white.

FILMSTRIP PROJECTOR



FILM STRIP COLLAR

1. PROJECTION LENS
2. PROJECTION LENS SCREW
3. LEVELLING FEET
4. COLLAR HOLDER
5. ON/OFF SWITCH

Fig. 15

ADVANTAGES

Economical—Film strip projectors and films are comparatively cheap.

Compact—light in weight, easy to file and store.

Easy to maintain, no breakage.

Simple to project.

Easy to prepare.

Valuable for prolonged study and discussion.

Flexible, rate of presentation can be varied at will. This is an advantage over the motion picture. Attention is focussed on one aspect at a time. This can be discussed until cleared.

A film strip can be modified according to the needs of the audiences. This can be seen backward, if necessary, to review a particular related point in developing a concept.

It helps cross the language barrier.

Can provide local interest and thus can be more interesting and impressive.

LIMITATIONS

Pictures are in a definite sequence and an individual frame cannot easily be singled out for projection.

Pictures are unprotected and are easily scratched and marred.

Logical order cannot be changed or frames discarded to meet different situations.

Cannot be worked in the open during day time or without electricity or petromax and the projector.

UTILIZATION

Film strip may be used successfully in any situation in which a still projected picture is the best educational medium to assist in teaching a particular thing.

How to make a film strip

In preparing the film strip you have to: prepare a script;

plan each 'shot'; arrange each picture in the proper sequence or logical order; add titles if you desire; photograph each card or scene in the proper order.

SCRIPT WRITING

The script is usually based on breaking down the complete story into its important sequences and re-constructing it for detailed film strip presentation.

After finalising 'theme' or 'story' you want to present in the film strip, you have to prepare 'planning cards', one for each sequence or step. Thus you will have as many cards as the number of framers you plan in the film strip. Here is a suggested sample of a planning card:

Describe the picture to be taken or used. You may give rough sketch of the picture here.	Write here talking point—Summary of story to be told by the picture.
Write here special instructions for picture or drawing.	Frame No.

Photographic Pictures

When the photographs are necessary for film strips, they are taken alongwith the motion picture on the same subject. Then the cost of film strip production is reduced. otherwise, still photographs taken are to be used. Instead of photographs hand drawn pictures may be used. That is, you have to 'translate' words into picture ideas.

After selecting the photographs or pictures, corresponding captions are given.

Enlarge the selected pictures or photographs and add the necessary art work to produce a complete layout.

PRODUCE A MASTER NEGATIVE

This is the most complicated aspect in film strip production. Hand over the production of the master negative to a qualified private studio. The negative will be your property and the prints as many as you want will be processed by the studio at your cost.

21. MOTION PICTURES, MOVIE PROJECTORS AND SUGGESTIONS FOR EFFECTIVE UTILISATION OF FILMS

VALUE OF MOTION PICTURES

1. Present certain meaning involving motion.
2. Compel attention.
3. Heighten reality.
4. Speed up or slow down time.
5. Bring the distant past and the present into the classroom.
6. Provide an easily reproduced record of an event.
7. Present physical processes invisible to the naked eyes.
8. Enlarge or reduce the actual size of object.
9. Build a common denominator of experience.
10. Influence and even change attitude.
11. Promote an understanding of abstract relationships.
12. Offer a satisfying aesthetic experience.
13. Show things in action.

Some "Don'ts" with Motion Pictures

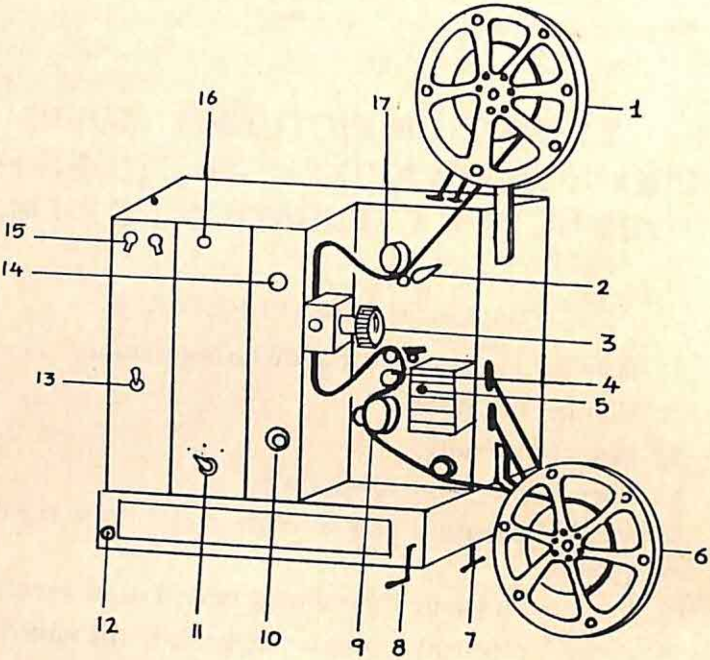
Don't use film during class time for entertainment.

Don't take class out of the classroom to show film if it can be avoided.

Don't show film you have not previewed.

Don't show film without letting the class know something about what they are expected to learn from it.

16 mm MOVIE PROJECTOR



1. FEED WHEEL
2. OPERATIVE/REWINDING KNOB
3. PROJECTION LENS
4. SOUND DRUM
5. EXITER LAMP HOUSE
6. TAKEUP WHEEL
7. LEVELLING FEET
8. LEVELLING FEET ADJUSTING KNOB
9. LOWER SPROCKET
10. SILENT/SOUND SWITCH
11. PROJECTOR ON/OFF BUTTON
12. SOUND CONNECTOR
13. AMPLIFIER SWITCH
14. FRAME ADJUDSTING KNOB
15. VOLUME CONTROLS
16. LAMP HOUSE SCREEN
17. UPPER SPROCKET

Fig. 16

Don't have room too hot or poorly ventilated.

Don't wait until film is needed to make arrangements for its use.

"Do's"

Book films thirty days before they are to be used.

Always have a teaching objective before showing film to class.

Plan your film to fit into your teaching plan of the unit being taught.

Preview film before showing.

Study teacher's guide with film when available.

Introduce film to students:

a) Let students know what you expect them to learn from the film.

b) Let students know they will be tested on the film.

Have equipment set up before class.

After showing film, discuss points to be emphasized in your teaching.

Test student for mastery of information.

Re-show film if needed.

Have students put the new learning into practice.

MOVIE PROJECTORS

Good Showmanship Tips

1. Place the projector on a rigid stand, one high enough to project over the heads of the audience.
2. Clean the gate, other surfaces which contact the films, and both surfaces of the projection lens.
3. Centre the light on the screen and focus so that a clear outline is visible. this will decrease the amount of focusing to be done after the film is threaded and projection is started.
4. If the picture is too small for the screen, increase the distance between them.

5. Have the bottom of the screen the same height as the top of audience heads.
6. Check the amplifier switch, the same height as the top of audience heads.
6. Check the amplifier switch, the motor speed, and the "forward" position.
7. Test for sound by turning the volume on full. After a characteristic speaker hum is heard, turn back to the halfway point.
8. Do not have the volume turned too high at the start of the film. A loud introduction will tend to distract the class.
9. Prevent white flashes at beginning of film by not turning on projection lamp too soon.
10. Step away from the machine for a short time so that you can properly judge the sound. An operator often has the volume set too high in order to overcome the sound of the projector. After this volume adjustment, the operator should stay near the projector until the film showing is completed.
11. Have a spare projection bulb and exciter bulb. Know how to replace them if the occasion demands.
12. Familiarize yourself with the following:

Framer
Fuse
Lens
Sound drum
Gate
Manufacture
Power cord
Pressure shoe
Take-up and rewind belts
Exciter bulb
Projection lamp
Pilot lamp

Suggestions for Utilisation of Films

I. Cardinal Principles of Audio-Visual Education

(a) *Preview*

Consider important scenes, significant action, learning cues, vocabulary.

(b) *Planning*

Will it serve best as an introduction, an aid to direct instruction, or a review?

(c) *Preparation*

List pertinent question. Briefly outline film content. Refer to new materials to be presented.

(d) *Presentation*

Note suggestions in "Showmanship Tips."

(e) *Follow-up*

Provide an opportunity for analysis, interpretation, and discussion. Also report on related topics.

II. Use only those films which make a real contribution to the topic under study.

III. Use only those films whose content is appropriate for the age and intelligence of the group with which it is to be used.

IV. If possible, do not show more than one film per class period.

V. The film should provide experiences which are not accessible at first hand in the community.

VI. Some teachers keep an evaluation record of films used. This saves time in previewing when the same film arrives on a future booking.

PART - D
AUDIO-VISUALS

22. TAPE RECORDERS AND RECORDINGS

THE TAPE RECORCER AND USES OF RECORDING IN THE EDUCATIONAL PROCESS

I. *Definition of a recording*

(a) A means of bringing information to learners.

(b) Information is presented through means of audio-imagery.

II. *Materials Needed or Utilized*

(a) Record Player—recordings engraved on a disk.

(b) Tape Recorder—recordings made on magnetized tape or wire.

III. *Objectives*

a. To acquire skills
    1. Make student aware of his need for improvement
    2. Enable student to judge his progress

b. To suggest standards

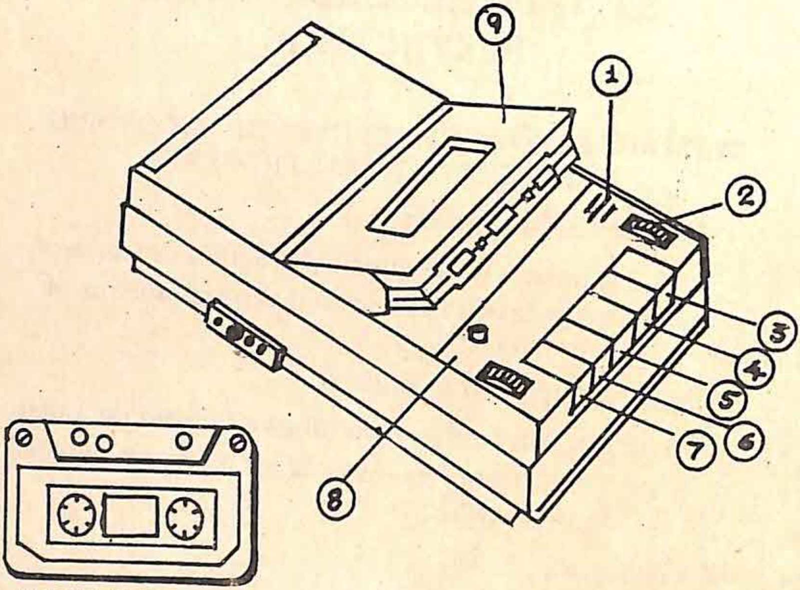
c. To collect data-create a realistic atmosphere.

IV. *Advantages of the Tape Recorder*

a. Recordings are "two-way" communication.
    1. Can stop recording to discuss a point
    2. Can add emphasis by replaying

b. Recordings are controlled by you

CASSETTE TAPE RECORDER



1. BUILT-IN MICROPHONE
2. VOLUME CONTROL
3. STOP BUTTON
4. PLAY BUTTON
5. REWIND BUTTON
6. FORWARD BUTTON
7. RECORD BUTTON
8. EJECT BUTTON
9. CASSETTE COMPARTMENT

Fig. 17

- c. Recordings eliminate the scheduling problems of radio
    - 1. Can fit them into your time schedule
- d. Recordings can be pre-heard and evaluated
- e. Recordings can be made in your own school
    - 1. Students can "hear themselves"
- f. Recordings are to the ear what pictures are to the eye
- g. Recordings reinforce values and relate meanings.

V. *Uses*

- a. To transcribe radio broadcasts.
    - 1. Record to play on radio
    - 2. Record a radio programmme to play to class
- b. Social studies
    - 1. Allow students to hear a discussion first ahand and draw their own conclusions
- c. Language Arts
    - 1. Enables student to hear himself
- d. Music
    - 1. Opportunity for self analysis
- e. Develop listening ability
- f. Improve visual perception of an explanation
- g. Improve vocabulary
- h. Business Education
    - 1. Speed tests
    - 2. Vocabulary and spelling drills
- i. Dramatics and speech
    - 1. Examples of speeches, debates, plays
- j. Foreign Language Lab
- k. Counselling and guidance
- l. Electronic Learning Laboratories
- m. Oral Drill Materials for Mathematics

n. Help teachers evaluate themselves

o. Record meetings persons unable to attend.

VI. *Procedure*

a. How to Play

1. Prepare listeners for the experience
2. Place machine in front of students with loudspeaker visible
3. Minimize distractions.

b. How to Record

1. Find the best recording distance and position so for the speaker, in relation to the microphone
2. Speak in a clear, distinct normal conversational voice
3. Eliminate all undesired background noise
4. Do not jar or move microphone during recording
5. Do not record in a room with excessive echo quality.

VII. *Judging Recordings and Recorders*

a. Is the recorder tape clear and distinct?

b. Is it suitable for your class?

c. Is its length appropriate?

d. Is its r.p.m. suited to your playback machine?

e. Is the main theme well brought out?

f. Is the number of concepts introduced not too high?

g. Is the vocabulary level appropriate?

h. Will it appeal to the interests of your class?

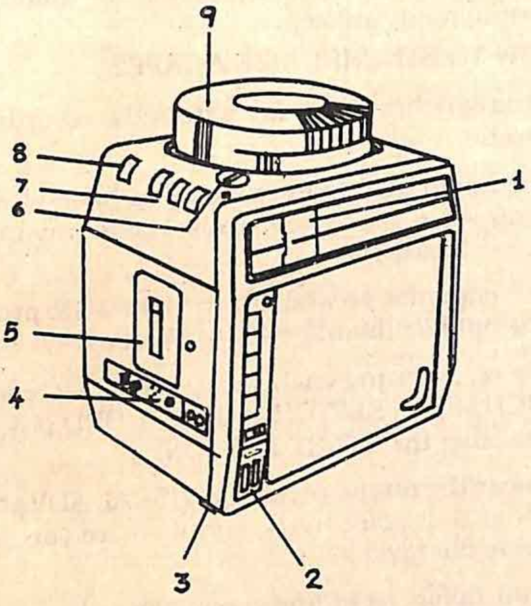
i. Is the pace satisfactory?

j. Is the subject one that can be handled more effectively in other ways?

k. Is recorder simple to operate?

l. does the recorder have variable speeds?

SLIDE-TAPE SYNCHRONIZER-CARAMET-4000



1. Wall Screen Projection Door
2. Optional Audio Control Panel Door
3. Elevation Leg (Both Sides)
4. Side Panel Lamp Switch/Accesory Receptacles
5. Cassette Door
6. Manual and Auto-Focus Controls
7. Slide Function Control Buttons
8. Magna-Frame Lever
9. Round Tray

Fig. 18

m. Is recorder easy to handle?

n. Type of service available.

VIII. *Costs*

a. Extremely variable depending on quality of equipment utilized.

HOW TO SYNCHRONIZE A TAPE?

1. Attach the synchronizing cable from the recorder to the projector.
2. Place the audio tape (onto which you have already taped your voice, etc.) and carousel slide tray in the appropriate locations.
3. Turn the machines on and advance the slide projector to the opaque (blank) slide in Position 1.
4. Place the recorder in synch-record mode by holding the SYNCH MODE SWITCH in the RECORD position while pressing the START BUTTON.
5. As you hear the audio, press the VISUAL ADVANCE BUTTON at that point in the script where you want the slide to change.
6. When you finish recording the synchs, rewind the tape and return the slide tray to position 1.
7. Now push the START BUTTON to check the synchronization of the slides to the tape. (NOTE: The SYNCH MODE SWITCH automatically returns to PLAY position when the STOP BUTTON is depressed.)
8. If you make a synch mistake, merely return the tape to a second or two beyond the last correct synch. Place the SYNCH MODE SWITCH in RECORD position to re-record over the inaccurate synchs. Once you press the STOP BUTTON, the sych record stops and all synchs will be left from that point on.
9. Turn the machines OFF and return to proper storage location.

23. VIDEO TAPE

Video tape may be the most important communication medium of the future. Portable video tape recorders record and sound as easily, quietly and quickly as conventional tape recorders record sound alone. Play the recorded video tape material back through a television receiver or monitor, and you can have a mass medium. This section won't give you the nuts and bolts directions for operating video tape equipment—consult instruction manuals for that information. What this section will tell you is

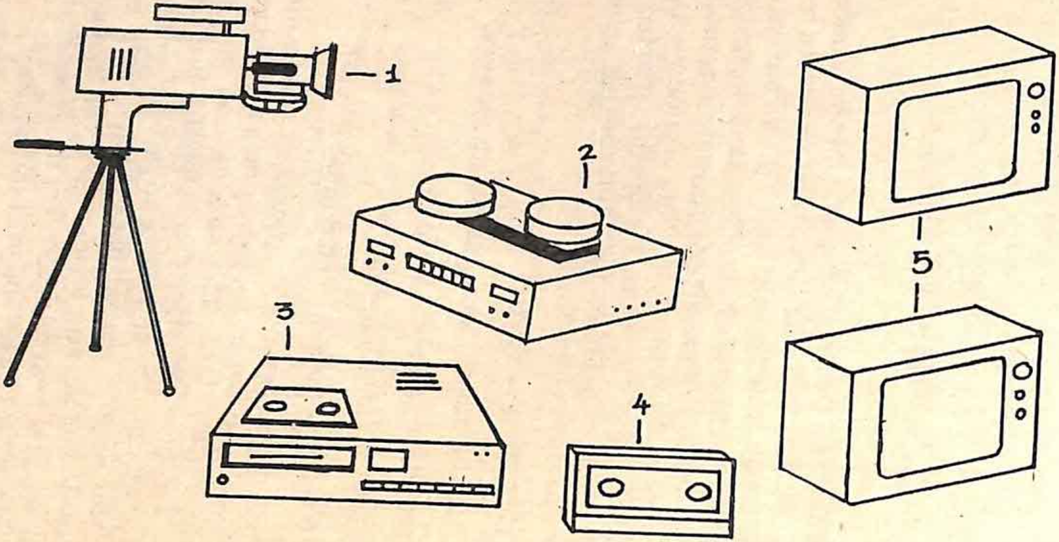
- What is video tape (VTR)?
- What are the advantages and disadvantages?
- How can video tape be used?
- 'The rules of 'Video language'.
- How to write scripts for video tape?

A video tape recorder (VTR) system is made up of a camera, a microphone, a tape recorder and a reel or cassette or a special recording tape The sounds and images are recorded on the tape as electronic signals, and during playback these signals are converted to picture and sound. The picture and sound can be played back right on the system, or a television set can be hooked up so that a larger audience can see and hear the tape. There are several basic VTR set-ups available, including portable styles.

Videotaping live material provides several advantages for you and for the audience. They are:

- Video tape attracts and holds attention.

VIDEOGRAPHY EQUIPMENT



1. Video Camera 2. VTR
3. VCR 4. Video Cassette
5. Monitors

Fig. 19

- You can reach a larger audience. The audience watching a live demonstration, for instance, would be limited by the size of the room where the demonstration was taking place. If you taped the demonstration, the tape could be played on a cable television station or on many television sets on a closed circuit system.
- You can erase goofs. If a piece of equipment fails, or a person forgets his lines, just erase the faulty part and record it again until it's right. Complicated material can also work better on videotape because you can turn it off while you set up, and the audience won't have to wait as they would be in a live presentation.
- A tape can be used again and again. A viewer using a single television receiver can use a tape as he would a book—studying certain sections several times, and skipping other sections entirely. That choice doesn't exist when you watch something in real life.
- Extremely noisy procedures can be videotaped at a low volume so the audience can watch the actual procedure without suffering the noise. You can also explain the procedure on tape without being drowned out by the noise.
- Small objects can be easily seen. By using different lenses, you can tape extreme close-ups of tiny objects so they show up better on tape than they would appear in real life.

There are some other important advantages of tape:

- A tape is immediate. Because you can play back a tape as soon as it is made, you can catch any errors right away.
- A tape is cheap, because it can be erased and used again and again.
- Video tape is easily distributed. It can be easily mailed, or carried, unlike boxes of printed material.

- Video tape is easy to use. Even young children can learn which buttons to push, and can record and play back their own material.

Of course, there are some disadvantages to video tape, too. They include:

- Some video tape equipment is heavy, and is too big to move around or store easily.
- Video tape provides no response from the audience. When you give a live demonstration or performance, you can see for yourself how the audience is reacting to your message, and perhaps change your delivery a little to fit. This is not possible with video tape.
- Taping takes time and equipment, so it can be more expensive than live contact. This will depend on how many times the tape will be shown, how many people you need to reach, etc. If a tape won't be shown more than five times, it would probably be more efficient to use live contact instead.
- Video tape viewers are a sophisticated bunch. If you use your tape for cable television, remember that it may be competing with slick professional programmes for attention. Your tape will need to be well produced to keep the audience from switching stations.

HOW TO USE VIDEO TAPE

It's hard to weigh all these advantages and disadvantages until you have some idea of how you might use video tape. We'll offer some suggestions to help you weight the pros and cons.

Video tape is a very flexible medium, and it can be useful in many different ways. Here are some basic categories for its uses, and some specific ideas for each category.

- *Record the real world*, or real events, for study or entertainment. When used in this way, the video camera simply makes a record of something that is happening. The VTR operator doesn't construct a message or influence what's going on—he just records it. Some examples of ways this can be valuable:

  - Record play rehearsals, sports events or other competitions so the participants can see themselves in action and made improvements.
  - Record community events, meetings, parades, etc., and play them back to people who can't get out to see them. Invalids, prisoners, students or military personnel stationed overseas and night shift workers are all people who might appreciate having a slice of community life brought to them.
  - Poor housing, pollution, unsafe working conditions, and other community problems can be taped for use by citizens who are working on the problems. A tape can record conditions before, during and after work, and serve as a permanent record of what's been accomplished.

- Use tapes to teach skills, demonstrate how something works, or illustrate ideas. When used in this way, the VTR offers the advantages of live instruction and the convenience of tape. the VTR operator may follow an actual script or may record real or staged events that illustrate the message. Some examples:
  - Record demonstration speeches. Even complicated procedures can be demonstrated on tape, and the tape can be used alone or with other teaching materials.
  - Produce a documentary tape. Figure out your message, and illustrate it with taped material from real - life situations.
  - Tape different stages of 4-H projects, and show the final results. These tapes can help share ideas with other members or can be used to promote your club.
  - Use tapes of real or staged events to help spice up

conventional speeches. Can a short video tape be used instead of less interesting visual aids ?

- Use tapes to help you develop a feel for "visual" language—an important skill for actors, artists, and other communicators. When used in this way, the VTR offers you a chance to see yourself as others see you, and to experiment with different ways of visual expression that can immediately compare. Some examples:
  - — Tape your skits, plays, or speeches, and then put yourself in the audience. Where can you improve?
  - — Tape the same scene from several angles, using a variety of camera movements, and get a feel for what different movement convey — change of time, distance or mood, for instance.
  - — Try expressing the same message in many different ways, and put them on tape. What do your gestures say? Facial expressions?
- Develop specific programs for video tape — either for entertainment or education. When you use tapes this way, you will need to write scripts (Video tape scripts need to include the dialogue or narration, and the visual instructions, such as what camera shots to use and how to move from one scene to another. See "Writing the Script" later in this Section). Here are some examples:
  - — Produce a regular programme highlighting 4-H activities to be broadcast on a local television station. This would be a major commitment. Do you have enough time, energy and interest to come through with such a large project?
  - — Tape a programme to go along with a fair exhibit, explaining some details of the exhibit or the history of the display.
  - — Tape highlights of awareness team presentations so that service organizations or other groups can

review the tape before scheduling team appearance.

These are just a few of the ways you can use video tapes. Tapes can be viewed by one person at a time in a study carrel or by mass audiences on cable television. Consider using closed-circuit television systems (many schools, hospitals and institutions have these systems), or public access station on cable television to air your tapes.

VIDEO LANGUAGE

Video tape is a way to preserve or distribute some other form of communication. For instance, demonstrations, skits, puppet shows, cartoons, and photography may all be taped. For these productions to be successful, you must first follow the rules for the communication techniques involved: you must know your audience, and know how the tape will be used. (See the other chapters in this book for help in the specific areas.). In addition to all this though, a really good video tape should speak "video language" well. Most of us have seen enough television and motion pictures to have a vague idea of how video language works, but there are some specific techniques to get across specific messages:

- Fade in (picture slowly emerges from black) — used at the beginning of a scene.
- Dissolve (one scene dissolves into another scene) — used to change place without changing time.
- Superimpose or super (one image appears on top of another, rather like a double-exposed photograph)— used to show a character's thoughts or flashback's, or to list titles or credits.
- Wipe (one scene pushes another off the screen from the sides, top or bottom — used to change place.
- Split screen (screen divided in half; two scenes or screen) — used to indicate two things going on at the same time.
- Fade (scene slowly fades away) — used to indicate passage of time or end of scene.

- Pan (horizontal camera movement) — used to survey a whole scene or include new images.

- Tilt (camera moves up or down) — used to direct viewers' attention up or down.

- Zoom (change in the camera lens) — from the viewers' point of view, the zoom in brings the subject to the viewer; zoom out pushes the subject from the viewer.

- dolly (camera moves toward or away from the subject) — dolly in brings the viewer to the subject; dolly out pushes the viewer from the subject.

In addition to those camera terms, learn these terms to indicate how far the camera should be from the subject:

- Extreme close-up (1)
- Close-up (2)
- Medium close-up (3)
- Bust shot (4)
- Waist shot (5)
- 3/4 shot (6)
- Full shot (7)
- One (or 2,3,4, etc.) shot (8)

Have fun experimenting with these different shots to get the feel you are trying for. For extra help, follow these do's and don'ts :

- Do leave enough "look room" — when it feels right, it is right.

- Do leave enough (But not too much) head room, as in the illustration.

- Don't video tape a talking head. If you will be taping a person giving a speech, use a variety of camera shots, close-ups of visuals, and other methods to make the best use of the visual. If you don't, you might as well use a tape recording instead of video tape.

- Do follow instructions for your equipment carefully. Every VTR unit is different, so make sure you know what you are doing.

- Do take good care of tapes. Store them in a cool, dry place, and let them reach room temperature before using them.

WRITING THE SCRIPT

You won't need to worry about a script if you're using the video tape to record something that's already happening, or to experiment with different video techniques. You will need a script for a video programme or lesson.

The sound, or audio, part of the script will be written in the same way you would write lines for a play, speech, or tape recording. Video tape is a little trickier, though, because you need to include instructions for the camera, too. Here is a sample script:

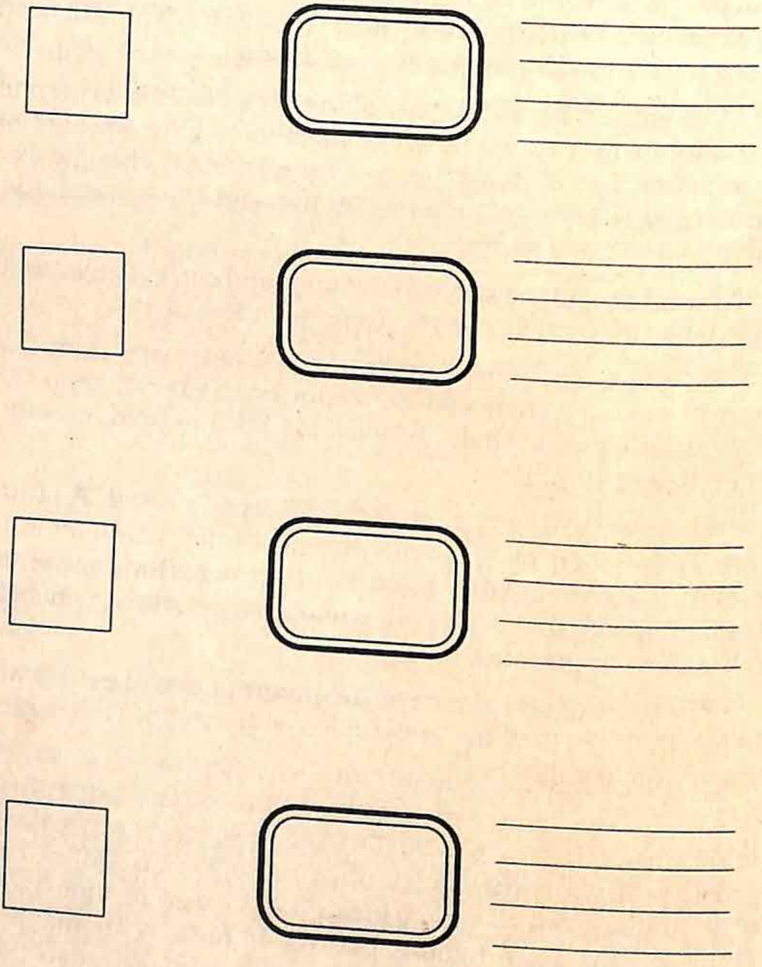
Run through the show a few times and correct any rough spots by taping them again. Here are a few tips:

- Start with short programes — not more than five minutes. Even when you are quite experienced, keep the programmes under half an hour. It's hard to hold an audience longer than that.
- Keep your purpose and audience in mind. A study tape to be used by students one at a time will be able to include more detail and technical language than a tape on the same topic that will be shown to a large audience on local television programme.
- Use the visual part of the program to its best advantages. don't just tell the audience — show them. That's what video tape is all about.

Video tape is an excellent way to record and distribute information. Because it can be used in so many ways, it can grow to fit your knowledge of communication skills. This section has given you some ideas for its use, and some basic skills to help you get going. Don't stop here. With imagination, study and lots of practice, you can make video tape work for you.

SCRIPT/STORY BOARD

Shot/ Scene No	Video	Audio



PART - E
EXTENSION METHODS

24. DEMONSTRATION

TEACHING WITH DEMONSTRATIONS

I. *Definition of a Demonstration*

A demonstration shows an audience how to perform an act or to use a procedure. It is often followed by a member in the audience in the role of a learner, carrying out the same activity under the guidance of the instructor. It is basically a visual presentation, accompanied by discussion.

A demonstration is a method of teaching in which the teacher uses a true to life example to prove the merits of a practice or to show and tell others how to perform a particular operation.

Relation to other visual aids: a demonstration is not really a visual aid but is a method of teaching. A demonstration consists of a lesson in itself.

II. *Purposes of Demonstrations*

A. To teach people how to carry out a particular task.

B. To show a new technique or procedure.

C. To convince the audience that a new product or procedure has merit.

D. To introduce students to techniques of operating experimental equipment.

E. To show planning and setting up of experimental layout.

F. To provide students opportunity to observe safety precautions.

DEMONSTRATION

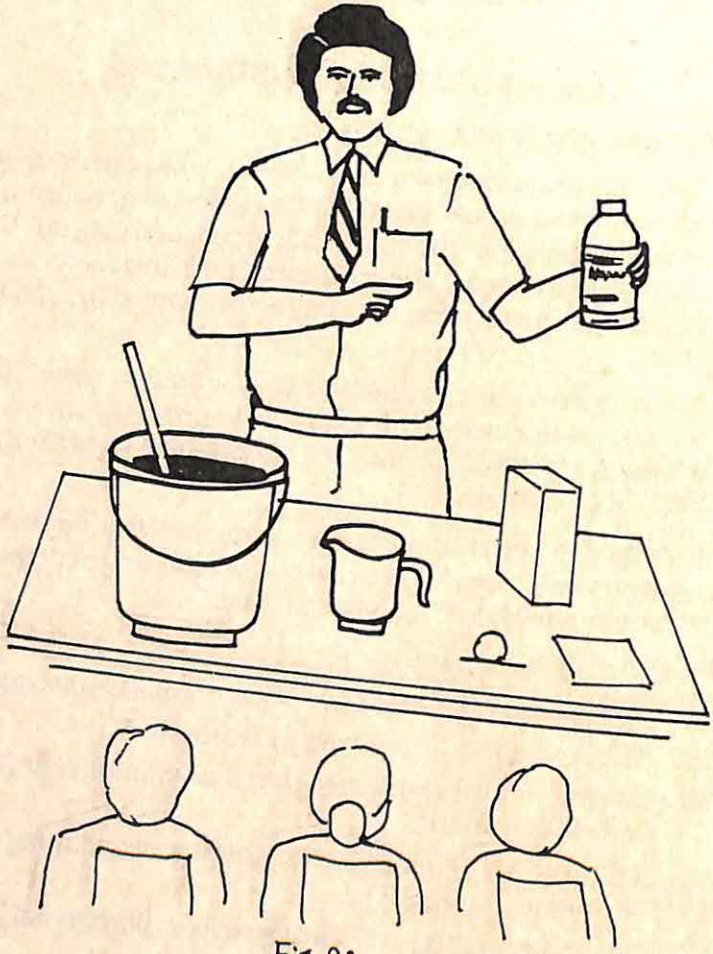


Fig.20

G. To suggest the fundamental relationships of things to concepts in the learning process.

H. Demonstrations are not to be used as:

  A "remedy" for teaching troubles

  A "crutch" for poor teacher

  A "substitute" for sound teaching plans and procedures.

III. *Advantages and Disadvantages of Demonstrations*

  A. Advantages

    1. Individuals are more likely to believe what they see than what they hear.
    2. Actual materials or models are used.
    3. Since the pace is flexible, the demonstrator can advise or repeat at a rate desired by the students.

  B. Limitations or Disadvantages

    1. Considerable time and expense can be involved in obtaining necessary materials. For example, heavy objects are extremely difficult to transport.
    2. If small objects are used, there is a strict limitation as to the number of people that can adequately observe the demonstration.
    3. If a limited supply of materials is available, only one member of the group may be able to imitate what has been demonstrated.

IV. *Giving the Demonstration*

  A. Setting or Facilities Needed

    1. An area which will accommodate all audience participants, whether standing or sitting, comfortable.
    2. A properly lit, raised platform or stage which will permit all members of the audience to see easily.

3. Necessary demonstration materials.

B. Physical Arrangement

C. Alternative: The arrangement for a demonstration must adapt to the requirements of the specific demonstration. The presentation by the demonstrator should be conducted in full view of all members of the audience. If a commentator is needed, he should not distract the audience by his presence and should be placed on the left side of the display area.

D. Procedure

1. Demonstrator collects all necessary materials and selects a suitable location.
2. Demonstrator presents his demonstration (a commentator may be used to describe the demonstration, or the demonstrator himself may deliver the oral portion of the demonstration).
3. Members of the audience (all or selected few) imitate what has been shown, with the help and/or criticism of the instructor or fellow students.

E. Examples

1. A practical nurse demonstrates how to prepare a formula for a new baby.
2. An audio-visual instructor demonstrates the use of a video tape recorder.
3. An extension agent demonstrates the proper methods to spray insecticides.

F. Disadvantages

a. Requires much time in planning, establishing, supervising.

b. Sometimes difficult to find well qualified persons who will keep necessary records for some projects.

c. It is difficult to develop specific proof of the advantages of some practices.

d. Expected results are never guaranteed.

V. *Kinds of Demonstrations and Other Helpful Hints*

A. Result Demonstration[1]

1. Purpose—to develop and show proof of an improved practice.
2. Conducted by farmer, student, 4-H club member.
3. Designed to teach—how and why to others in addition to the person conducting it.
4. Where—on farm or in home.
5. Duration—usually several weeks, months, or entire growing season.
6. Examples of result demonstrations—weed control, new crop varieties, tillage practices, livestock market grading, feeding trials, etc.
7. Procedure or steps to conduct
   - a. Determine needs and objectives
   - b. Develop plan
   - c. Select demonstrator
   - d. Make specific plans with demonstrator
   - e. Help start demonstration
   - f. Make supervisory visits to demonstration
   - g. Assist with collection of records, data, results, pictures.
   - h. Summarize results.
   - i. Publicize results.
8. Advantages
   - a. Stimulates more interest illustrated pages or talks.
   - b. Increases confidence of farmers in recommendations of vocational agriculture teachers and county agents.
   - c. Helps discover and develop local leaders.

NOTE: Result demonstrations should always be based upon proven research and improved practices.

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[1] *Result Demonstration Manual*, USDA, Federal Extension Service, Agriculture Handbook 123.

d. Provides specific local proof about recommended farm practices.

B. *The Method Demonstration*

1. Characteristics
    - a. Its purpose is to teach a method or a skill.
    - b. It can be conducted by a student, 4-H member, county agent or teacher.
    - c. It is designed to teach only those present.
    - d. It can be used on a tour at a training meeting, on the learner's farm, on TV.
    - e. It is usually completed in one meeting.
2. Preparation
    - a. The teacher
        - 1) Determine the students' needs and your objectives.
        - 2) Select the equipment to be used—have it ready before the demonstration starts.
        - 3) Plan the procedure you will follow.
        - 4) Know the demonstration well—confidence counts.
    - b. The students
        - 1) they should be prepared psychologically so the demonstration will have its greatest possible effect on them.
        - 2) It should come at a time when it fits into the lesson.
            - a) It may be used to answer a question when curiosity is high.
            - b) May be used at a certain point to make an idea clear.
        - 3) It has meaning because it is part of the problem or unit of work.
3. Giving the demonstration
    - a. Set the tone for good communication.

- b. Keep your demonstration simple.
- c. Do not digress from the main ideas.
- d. Explain each step, its importance and why it is being done.
- e. Emphasize key points where error is likely.
- f. Check continually to see that your demonstration is being understood.
- g. Stimulate students by questions, comments and indications of applicability.
- h. Make sure every student can see the demonstration.
- i. Do not hurry your demonstration.
- j. Keep summarizing as you progress.
- k. Hand out written materials.
- l. Should be timed to include a follow-up.
- m. Evaluate your performance.

4. Follow-up

- a. Review the main steps. Make inferences, generalizations.
- b. Invite questions.
- c. Pass around materials.
- d. Give students a chance to apply demonstration learning.
- e. Are other tests feasible?
- g. Encourage and help students use the practice(s).

25. FIELD TRIPS AND/OR TOURS

I. *Introduction*

  A. Justification of field trips and tours

    1. On a field trip or tour you:

      a. See — 87% of brain impression

      b. Hear — 7% of brain impression

      c. Feel, taste and smell — 6% of brain impression

    2. Make close observation of natural and man-made things.

    3. Inspect administration, organization and procedures in many fields.

    4. Students are impressed by having first hand observations.

II. *Trip Opportunities*

  A. Take a survey of the community for:

    1. Industrial operations

    2. Distribution centres

    3. Processing plants

    4. Manufacturing shops

  B. Most owners or managers will grant permission for a field trip to their establishment.

III. *How to Use the Field Trip*

  A. Arouse student's interest in a unit of work or occupational opportunities

FIELD TRIPS

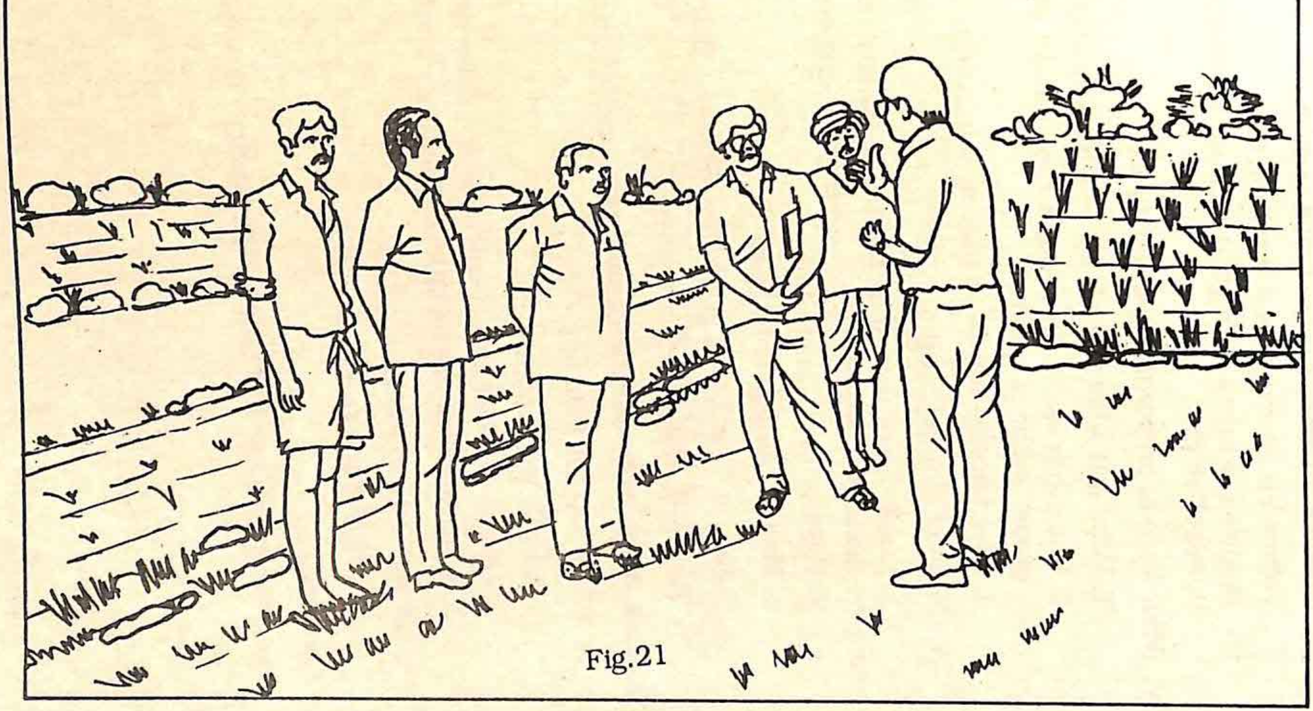

Fig.21

B. Specific information or skilled training

C. Follow-up or review of a teaching area

D. Inspire a student with good attitudes toward vocational choices

IV. *What to do in preparation for a field trip*

1. Point out what to look for — why it is important
2. Use other visual aids to put the student in the proper frame of mind
3. Give information as to time and location.

A. Conduct of a field trip

1. Know institutional regulations—safety requirements
2. Have proper transportation
3. Make arrangements as to:

a. Date c. Number of students—Student Behaviour

b. Time d. Objectives of the trip

4. Be punctual. *Arrive* and *depart on time.*

B. Follow-up the field trip

1. Clarify weak points
2. Do not criticize the co-operator or place visited
3. Write letter of appreciation of visit to co-operator

C. Review the training

1. Exhibit any pictures, etc.

V. *Summary*

A. If the instructor has taught, the student has learned.

PART - F

MEDIA DESIGN PRINCIPLES

26. THE INSTRUCTIONAL AIDS DESIGN PRINCIPLE

1.	CLARITY	Is the purpose of the visual obvious to the audience for whom the message is intended?
2.	SIMPLICITY	Is the visual restricted to one basic idea?
3.	EMPHASIS	Are the most important elements of the visual emphasized?
4.	HARMONY	Do all of the elements of the visual fit together in a harmonious relationship, or are some elements contradictory?
5.	ORGANIZATION	Are the elements of the visual arranged in a pattern which is easy for the viewer to comprehend?
6.	LEGIBILITY	Are all labels and captions legible?
7.	BALANCE	Are all of the elements of the visual arranged in a manner which is interesting, but not distracting?
8.	UNITY	Are the elements of the visual arranged so that they form a single unit?

27. A MEDIA SELECTION PROCEDURE

During the planning of your programme, answer the following sequence of questions:

1. Which teaching/learning pattern—group presentation, individualized learning, or small group interaction—is selected or is most appropriate for the objective and the nature of the student group?
2. Which category of learning experiences—direct realistic experiences, verbal or printed word abstractions, or vicarious, sensory experience—is most suitable for the objective and instructional activity in terms of the selected teaching/learning pattern?
3. If sensory experience is indicated or selected, which features of media are necessary or desirable?

Refer to the appropriate media selection diagram (next page). Each diagram is a sequence chart for a teaching/learning pattern. As you answer questions on each level you are led to media choices.

Often the decision reaches a group of related media, such as still pictures. Each still picture form—for example, photographs, slides or a film strip—would provide equally effective instruction. The choice, then, is based on the most practical form to use, considering the relative merits of a number of empirical factors. Now see the table below.

Final Media Decision

		ALTERNATE MATERIALS	
CRITERIA	PHOTOGRAPHS	SLIDES	FILM STRIP
Commercially available			
Development and preparation costs			
Reproduction costs			
Time to prepare			
Skills/ services required			
Equipment—Facilities Viewing - handling			
Maintenance—storage			
Student preference			
Instructor preference			

Rate each medium for each item that applies. Then make a final decision.

28. VARIOUS COLOURS AND THEIR USES

1. *Things to Keep in Mind for Good Legibility in Lettering*
   a. Plain Gothic letters are more easily read than fancy ones.
   b. Black and white lettering or coloured letters on a sharp-contrasting background such as orange and black are better than low-contrasting combinations.
   c. Normal spacing with the areas between the letters as uniform as possible is better than condensed or expanded letters.
   d. Letters of a height-to-width ratio of about 3:5 are better than extremely thin or extremely wide letters.
2. *Colour as an Aid in Teaching*
   a. Should be used to tie the various elements together; to integrate and unify the whole.
   b. Emphasize the most important elements by making them stand out vividly against the background.
   c. Colour directs the eye of the observer.
   d. Directly opposite colours (from a colour wheel) seem to flicker as you look at them—a certain amount of flicker is good.
   e. Some exhibits suggest colour is related to the subject.
   f. A slight visual shock accompanied by an agreeable colour sensation is most desirable.

3. *How to use Colour*

Contrast is the most important factor to consider when using colours.

Dark Colours	*Medium Colours*	*Light Colours*
a. Black	a. Bright red	a. Lemon
b. Blue	b. Turquoise blue	b. Orange
c. Violet	c. Veridian green	c. Light green
d. Green	d. Magenta (Rose)	d. Light blue
e. Maroon	e. Medium brown	e. Light gray
f. Brown		f. Light brown
		g. White

4. *The Scientific Use of Colour*

Red — excites nerves, arouses feelings

Orange — is heating, soon excites; irritation

Black — indicates darkness, gloom, and death; use gray as background

Violet blue — is stern, hard, unyielding

Blue — cooling, quieting

Green — restful, soothing, neutralizing

Yellow — arouses joy and gaiety; catches the eye most readily

29. TYPOGRAPHY

Typography is the art of placing types in the area at your disposal, controlled by the purpose for which the print is required.

You have some space for printing, you have many families and sizes of types. Arranging types from families and sizes in the available space so as to make the text attractive is 'art of typography'.

This distribution of text matter will also be controlled by the purpose for which the print is required. every publication has its own purpose. For example, a poster has a different purpose than a leaflet.

Each type face has a definite character. The type faces are available in many characters as Bodani, Plantin, Granby, Gillsan, Spartan and Rockwell, etc. Each character is available in 8 pt., 12 pt., 14pt., 18 pt., 24pt., 30 pt., and so on. Also each character is available in light, bold, extra bold, condensed, expanded and italics face also. By manipulating families and sizes you can produce an artistic effect on the print.

Types are measured in terms of points. Practically 72 pts. are equal to 1 inch. This point system is applicable to height of the types only. For general measurements pica is used which is equal to 12 pts. or 1/6 inch.

There are some rules that may guide you to make a print attractive.

Legibility — The final print should be easily readable by the person for whom it is meant. That means for a reader whose reading ability is low type face should be bigger. Also type meant to be read from a distance should be big e.g. a poster.

Select the suitable type face for the job and to fit in the space available. Remember at the same time it should be easily readable.

Different subjects need different types. Select type faces according to the emphasis needed.

Text matter in the typed script has to be fitted in print. You must know how such type area will be required to fit in your manuscript in a particular size and face or type.

The first and the simplest way is to count the average number of letters (counting interword space as one letter) in a line of the manuscript. Count the number of lines in the manuscript. Multiply the average number of letters by the total number of lines. This will give you total number of letters in the manuscript. Count the number of letters in the line of required measure from the printed specimen. Divide the total number of printed lines. Find out how many lines are coming in an inch. You will get the length of matter in inches in your required measure.

The same procedure may be followed by counting number of words.

If you are using a normal face, i.e., the face is neither condensed nor expanded you can use the readymade tables which are available. Here one word means 5 letters plus one space i.e. 6 letters. Following are some of the example of different pt. type faces.

3 Typography is architecture, and the typographer is the architect. The building bricks he uses are the type faces, and the mortar is the spacing he selects

9 Typography is architecture, and the typographer is the architect. The building bricks he uses are the type faces, and the mortar is the

10 Typography is architecture, and the typographer is the architect. The building bricks he uses are the type faces, and the

11 Typography is architecture, and the typographer is the architect. The building bricks he uses are the type faces,

30. COMPARATIVE CHARACTERISTICS OF DIFFERENT INSTRUCTIONAL MEDIA

MATERIAL	ADVANTAGES	LIMITATIONS
1. PRINT MEDIA	1. Contain common types materials	1. Sophisticated types are costly to prepare
	2. Have wide variety of applications	2. Requires suitable reading ability
	3. Simple types quick to prepare	
II. DISPLAY MEDIA	1. Useful in any kind of room without special adaptations	1. Limited to use with small groups
	2. Allows user to be flexible for making changes as presentation proceeds	2. Requires some showmanship on part of speaker
	3. Easy to prepare and use materials	3. May not be accepted as important media forms when compared with projected types
III. OVERHEAD TRANSPARENCIES	1. Can present information in systematic, developmental sequences	1. Require special equipment facilities, and skills for more advanced preparation methods
	2. Use simple-to-operate projector with presentation rate controlled by instructor	2. Are large compared with other projects
	3. Require only limited planning	

	4. Can be prepared by variety of simple, expensive methods	
	5. Particularly useful with large groups	
IV. AUDIO TAPE RECORDINGS	1. Easy to prepare with regular tape recorders	1. Have a tendency for overuse, as lecture or oral text book reading
	2. Can provide applications in most subject areas	2. Fixed rate of information flow
	3. Equipment for use is compact, portable, easy to operate	3. Low fidelity of small portable recorders
	4. Flexible and adaptable in any situation	
	5. Duplication easy and economical	
V. SLIDE SERIES	1. Require only filming, with processing and mounting by film laboratory	1. Require some skill in photography
	2. Result in colourful, realistic reproductions of original subjects	2. Require special equipment for closeup photography and copying
	3. Prepared with any 35 mm camera for most uses	3. Can get out of sequence and be projected incorrectly if slides are handled individually
	4. Easily revised and updated	
	5. Easily handled, stored, and rearranged for various uses	
	6. Increased usefulness with tray storage and remote control by presentor	

	7. Can be combined with taped narration for greater effectiveness	
	8. May be adapted to group or to individual use	
VI. FILM STRIPS	1. Are compact, easily handled, and always in proper sequence	1. Are relatively difficult to prepare locally
	2. Can be supplemented with recordings slides to film strip	2. Require film laboratory service to convert filmstrip
	3. Are inexpensive when quantity reproduction is required	3. Are in permanent sequence and cannot be rearranged or revised.
	4. Are useful for group or individual study at projection rate controlled by instructor or user	
	5. Are projected with simple light weight equipment	
VII. MULTI-IMAGE	1. Can demand attention and create strong emotional impact on viewers	1.Require additional equipments, and complex setup
	2. Can compress large amounts of information in short presentation time	2. Equipment and production costs high for complex programmes
	3. Provide for more effective communications in certain situations than when only a single medium is used	
VIII. VIDEO AND FILM	1. Particularly useful in describing motion, showing relationships, and giving impact to topic	1. High cost for studio production equipment
		2. Resolution limited with video for the fine detail close-ups

	2. Allow instant replay of video recording	3. Incompatibility of video format types
	3. Video tape reusable	
	4. Easy to record lip sync on video tape	4. Value of investment in motion picture equipment as video replaces film
	5. May include special filming techniques animation, time-lapse)	
	6. Combine still and motion on video disc	
	7. Standardized film projector available everywhere.	
IX. COMPUTER-BASED INSTRUCTION (CBI)	1. Present text information and graphic images	1. Requires computer and programming knowledge
	2. Interacts with learners on individual basis through asking questions and judging responses	2. Requires essential hardware and software for development and use
	3. Maintains record of responses	3. Resolution of graphic images limited on micro-computer systems
	4. Adapts instruction to needs of learner	
	5. Controls other media hardware	4. Effective when used by only one or few individuals at a time
	6. Can interface computer and video for learner controlled programmes	5. Incompatibility of hardware and software among various systems

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